

**WEST**

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L4: Entry 1 of 1

File: DWPI

Jan 7, 2003

DERWENT-ACC-NO: 2001-000539

DERWENT-WEEK: 200314

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TITLE: Lithium based composite oxide particles for battery cathode, which are coated with one or more metal oxides

INVENTOR: AMANN, A; HEIDER, U ; KUEHNER, A ; LOTZ, N ; NIEMANN, M ; OESTEN, R ; NIEMAN, M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1022522 (May 15, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2003500318 W	January 7, 2003		028	C01G045/00
DE 19922522 A1	November 16, 2000		006	C01G045/00
WO 200070694 A1	November 23, 2000	G	000	H01M004/50
AU 200047512 A	December 5, 2000		000	H01M004/50
BR 200010566 A	February 19, 2002		000	H01M004/50
EP 1188196 A1	March 20, 2002	G	000	H01M004/50
KR 2002013887 A	February 21, 2002		000	C01D015/00
CN 1350706 A	May 22, 2002		000	H01M004/50

DESIGNATED-STATES: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2003500318W	April 25, 2000	2000JP-0619043	
JP2003500318W	April 25, 2000	2000WO-EP03682	
JP2003500318W		WO 200070694	Based on
DE 19922522A1	May 15, 1999	1999DE-1022522	
WO 200070694A1	April 25, 2000	2000WO-EP03682	
AU 200047512A	April 25, 2000	2000AU-0047512	
AU 200047512A		WO 200070694	Based on
BR 200010566A	April 25, 2000	2000BR-0010566	
BR 200010566A	April 25, 2000	2000WO-EP03682	
BR 200010566A		WO 200070694	Based on
EP 1188196A1	April 25, 2000	2000EP-0929419	
EP 1188196A1	April 25, 2000	2000WO-EP03682	
EP 1188196A1		WO 200070694	Based on
KR2002013887A	November 14, 2001	2001KR-0714531	
CN 1350706A	April 25, 2000	2000CN-0807605	

INT-CL (IPC): C01 D 15/00; C01 G 45/00; C01 G 51/00; C01 G 53/00; H01 M 4/02; H01 M 4/48; H01 M 4/50; H01 M 4/52; H01 M 4/58; H01 M 4/62; H01 M 10/40

ABSTRACTED-PUB-NO: DE 19922522A  
BASIC-ABSTRACT:

NOVELTY - Lithium-mixed oxide particles are coated with one or more metal oxides.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of the lithium-mixed oxide particles coated with one or more metal oxides comprising:

- (a) suspending the particles in an organic solvent;
- (b) reacting the suspension with a solution of a hydrolyzable metal compound and a hydrolysis solution;
- (c) filtering off the coated particles; and
- (d) drying and optionally calcining.

USE - For 4V cathodes for electrochemical cells, batteries and secondary lithium batteries (claimed).

ADVANTAGE - The electrode material has improved storage stability.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: LITHIUM BASED COMPOSITE OXIDE PARTICLE BATTERY CATHODE COATING ONE MORE METAL

DERWENT-CLASS: L02 L03 X16

CPI-CODES: L02-A; L03-E01B5;

EPI-CODES: X16-B01F1; X16-E01C1; X16-E01G;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-000141

Non-CPI Secondary Accession Numbers: N2001-000381

**WEST**

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L5: Entry 1 of 1

File: DWPI

Mar 7, 2002

DERWENT-ACC-NO: 2002-306202  
DERWENT-WEEK: 200261  
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TITLE: Ionic liquid used in mixtures with aprotic solvents, and other conducting salts,  
e.g., in electrochemical cells

INVENTOR: GEISLER, W; HEIDER, U ; HILARIUS, V ; IGNATYEV, N ; SCHMIDT, M ; IGNATIEV, N

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1027995 (June 9, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
KR 2002017934 A	March 7, 2002		000	H01M010/08
EP 1162204 A1	December 12, 2001	G	019	C07F009/28
BR 200102318 A	February 13, 2002		000	C07F009/02
CA 2349903 A1	December 9, 2001	E	000	C07F009/6506
CN 1327986 A	December 26, 2001		000	C07F009/53
<u>DE 10027995 A1</u>	December 13, 2001		000	C07F009/52
JP 2002025610 A	January 25, 2002		009	H01M010/40
US 20020015884 A1	February 7, 2002		000	H01M010/40

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO  
SE SI TR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2002017934A	June 8, 2001	2001KR-0031905	
EP 1162204A1	May 21, 2001	2001EP-0111953	
BR 200102318A	June 8, 2001	2001BR-0002318	
CA 2349903A1	June 7, 2001	2001CA-2349903	
CN 1327986A	June 8, 2001	2001CN-0122805	
DE 10027995A1	June 9, 2000	2000DE-1027995	
JP2002025610A	June 8, 2001	2001JP-0173307	
US20020015884A1	June 11, 2001	2001US-0877259	

INT-CL (IPC): B01 J 31/24; C07 B 61/00; C07 D 213/20; C07 D 233/54; C07 D 233/58; C07 D 247/00; C07 D 253/06; C07 D 263/30; C07 F 9/02; C07 F 9/28; C07 F 9/52; C07 F 9/53; C07 F 9/547; C07 F 9/6506; C07 F 9/6509; C07 F 9/6518; C07 F 9/653; C07 F 9/6539; C10 M 105/56; C10 M 105/74; C10 M 137/02; H01 G 9/035; H01 G 9/35 ; H01 M 4/04; H01 M 6/04; H01 M 10/08; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1162204A

BASIC-ABSTRACT:

NOVELTY - Ionic liquid has the formula K+A-.

DETAILED DESCRIPTION - Ionic liquid has the formula  $K+A^-$  (where,  $K^+$  = a group selected from the following compounds (1-8)).

$R_1 - R_5 = H$ , halogen, 1-8 C alkyl partially or completely substituted by F, Cl,  $N(CnF(2n+1-x)Hx)_2$ ,  $O(CnF(2n+1x)Hx)$ ,  $SO_2(CnF(2n+1-x)Hx)$ ,  $CnF(2n+1-x)Hx$ ;

$n = 1-6$ ;

$x = 0$  to  $2n+1$ ;

$A^- = (PF_x(CyF_2y+1-zHz)_{6-x})^-$

$x = 1-6$ ;

$y = 1-8$ ;

$z = 0-2y+1$ .

USE - Used in mixtures with aprotic solvents, and other conducting salts, in electrochemical cells, in super capacitors, as solvent and in the catalysis of chemical reactions, and as hydraulic fluids (claimed).

ADVANTAGE - The liquid has a large liquid range, a high thermal stability and low corrosivity.

ABSTRACTED-PUB-NO:

US20020015884A

EQUIVALENT-ABSTRACTS:

NOVELTY - Ionic liquid has the formula  $K+A^-$ .

DETAILED DESCRIPTION - Ionic liquid has the formula  $K+A^-$  (where,  $K^+$  = a group selected from the following compounds (1-8)).

$R_1 - R_5 = H$ , halogen, 1-8 C alkyl partially or completely substituted by F, Cl,  $N(CnF(2n+1-x)Hx)_2$ ,  $O(CnF(2n+1x)Hx)$ ,  $SO_2(CnF(2n+1-x)Hx)$ ,  $CnF(2n+1-x)Hx$ ;

$n = 1-6$ ;

$x = 0$  to  $2n+1$ ;

$A^- = (PF_x(CyF_2y+1-zHz)_{6-x})^-$

$x = 1-6$ ;

$y = 1-8$ ;

$z = 0-2y+1$ .

USE - Used in mixtures with aprotic solvents, and other conducting salts, in electrochemical cells, in super capacitors, as solvent and in the catalysis of chemical reactions, and as hydraulic fluids (claimed).

ADVANTAGE - The liquid has a large liquid range, a high thermal stability and low corrosivity.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ION LIQUID MIXTURE APROTIC SOLVENT CONDUCTING SALT ELECTROCHEMICAL CELL

DERWENT-CLASS: E11 L03 V01 X16

CPI-CODES: E07-D04A; E07-D09A; E07-D10; E07-D12; E07-D13C; E07-E01; E07-F01; L03-E01C2;

EPI-CODES: V01-B01D5; X16-B01F; X16-J02; X16-J08;

CHEMICAL-CODES:

## Chemical Indexing M3 \*01\*

## Fragmentation Code

B415 B720 B743 B752 B819 B831 C009 F011 F013 F521  
H181 H201 H601 H607 H609 H684 H685 H689 L721 M210  
M211 M212 M273 M280 M282 M312 M320 M323 M332 M344  
M361 M393 M411 M510 M520 M521 M530 M540 M620 M630  
M650 M710 M772 M904 M905 Q454 R023

## Specific Compounds

A6BGUN

## Chemical Indexing M3 \*02\*

## Fragmentation Code

B215 B415 B720 B741 B742 B743 B744 B751 B752 B819  
B831 C000 C009 C100 C106 C720 C800 C803 C804 C805  
C806 C807 F000 F011 F012 F013 F014 F015 F016 F431  
F521 F530 F541 F551 F570 F610 F710 H100 H101 H181  
H182 H183 H601 H602 H607 H608 H609 H621 H622 H623  
H681 H682 H683 H684 H685 H689 K130 K199 L640 L699  
L721 L730 M210 M211 M212 M213 M214 M215 M216 M220  
M221 M222 M223 M224 M231 M232 M233 M240 M250 M273  
M280 M281 M282 M283 M311 M312 M313 M314 M315 M316  
M320 M321 M322 M323 M331 M332 M333 M340 M342 M343  
M344 M353 M361 M362 M373 M383 M391 M392 M393 M411  
M510 M520 M521 M530 M540 M620 M630 M640 M650 M710  
M772 M904 M905 Q454 R023

## Ring Index

00096

## Markush Compounds

200056-93901-N

## SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-089255

Non-CPI Secondary Accession Numbers: N2002-239410

**WEST****End of Result Set**

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L8: Entry 1 of 1

File: DWPI

Jun 3, 2003

DERWENT-ACC-NO: 2002-019431

DERWENT-WEEK: 200339

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TITLE: Anode material used in electrochemical cells, batteries and secondary lithium batteries contains doped tin oxide

INVENTOR: AMANN, A; HEIDER, L ; LOTZ, N ; ROTHENBERGER, M ; SANDNER, T ; ROTHENBURGER, M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1025761 (May 25, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6573005 B2	June 3, 2003		000	H01M010/24
EP 1158587 A2	November 28, 2001	G	016	H01M004/48
<u>DE 10025761 A1</u>	November 29, 2001		000	H01M004/48
BR 200102082 A	December 26, 2001		000	H01M004/48
CA 2348260 A1	November 25, 2001	E	000	H01M004/24
JP 2002008636 A	January 11, 2002		006	H01M004/02
US 20020009640 A1	January 24, 2002		000	H01M004/48
CN 1326234 A	December 12, 2001		000	H01M004/48
KR 2001107708 A	December 7, 2001		000	H01M004/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6573005B2	May 25, 2001	2001US-0864874	
EP 1158587A2	April 24, 2001	2001EP-0109444	
DE 10025761A1	May 25, 2000	2000DE-1025761	
BR 200102082A	May 23, 2001	2001BR-0002082	
CA 2348260A1	May 23, 2001	2001CA-2348260	
JP2002008636A	May 21, 2001	2001JP-0151040	
US20020009640A1	May 25, 2001	2001US-0864874	
CN 1326234A	May 24, 2001	2001CN-0119070	
KR2001107708A	May 24, 2001	2001KR-0028593	

INT-CL (IPC): C01 G 19/02; C25 B 1/00; C25 B 11/04; H01 M 4/02; H01 M 4/24; H01 M 4/36; H01 M 4/48; H01 M 4/62; H01 M 10/24

ABSTRACTED-PUB-NO: EP 1158587A  
BASIC-ABSTRACT:

NOVELTY - Anode material contains doped tin oxide.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(a) an anode material comprising reacting a tin chloride solution with urea; reacting the solution formed with urotropin and a suitable doping compound; emulsifying the sol produced in petroleum ether; washing the gel obtained and drawing off the solvent; and drying the gel and tempering; and

(b) an electrochemical cell consisting of a cathode, anode, separator and electrolyte, the anode being made from the above material.

Preferred Features: The doping material is F, Cl, Br, I, S, Se, Te, B, N or P.

USE - Used in electrochemical cells, batteries and secondary lithium batteries (claimed).

ADVANTAGE - The material improves the cycle stability and increases the capacity of the electrochemical cell.

ABSTRACTED-PUB-NO:

US20020009640A

EQUIVALENT-ABSTRACTS:

NOVELTY - Anode material contains doped tin oxide.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(a) an anode material comprising reacting a tin chloride solution with urea; reacting the solution formed with urotropin and a suitable doping compound; emulsifying the sol produced in petroleum ether; washing the gel obtained and drawing off the solvent; and drying the gel and tempering; and

(b) an electrochemical cell consisting of a cathode, anode, separator and electrolyte, the anode being made from the above material.

Preferred Features: The doping material is F, Cl, Br, I, S, Se, Te, B, N or P.

USE - Used in electrochemical cells, batteries and secondary lithium batteries (claimed).

ADVANTAGE - The material improves the cycle stability and increases the capacity of the electrochemical cell.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ANODE MATERIAL ELECTROCHEMICAL CELL BATTERY SECONDARY LITHIUM BATTERY  
CONTAIN DOPE TIN OXIDE

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B8A;

EPI-CODES: X16-B01F1; X16-E01C1; X16-E09;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-005773

Non-CPI Secondary Accession Numbers: N2002-015484

**WEST****End of Result Set**

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L10: Entry 1 of 1

File: DWPI

Nov 29, 2001

DERWENT-ACC-NO: 2002-042521

DERWENT-WEEK: 200305

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TITLE: Anode material used in electrochemical cells, batteries and secondary batteries contains reduced tin dioxide

INVENTOR: AMANN, A; HEIDER, L ; LOTZ, N ; ROTHENBERGER, M ; SANDNER, T ; ROTHENBURGER, M ; SANDER, T

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1025762 (May 25, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 10025762 A1	November 29, 2001		006	H01M004/48
BR 200102085 A	December 26, 2001		000	H01M004/48
EP 1160898 A2	December 5, 2001	G	000	H01M004/48
CA 2348264 A1	November 25, 2001	E	000	H01M004/24
JP 2002015734 A	January 18, 2002		007	H01M004/48
US 20020028381 A1	March 7, 2002		000	H01M004/58
CN 1326233 A	December 12, 2001		000	H01M004/48
KR 2001107709 A	December 7, 2001		000	H01M004/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 10025762A1	May 25, 2000	2000DE-1025762	
BR 200102085A	May 23, 2001	2001BR-0002085	
EP 1160898A2	April 24, 2001	2001EP-0109445	
CA 2348264A1	May 23, 2001	2001CA-2348264	
JP2002015734A	May 22, 2001	2001JP-0153036	
US20020028381A1	May 24, 2001	2001US-0864092	
CN 1326233A	May 25, 2001	2001CN-0118958	
KR2001107709A	May 24, 2001	2001KR-0028594	

INT-CL (IPC): C01 G 19/02; C25 B 11/00; C25 B 11/04; H01 M 4/02; H01 M 4/24; H01 M 4/38; H01 M 4/48; H01 M 4/58; H01 M 4/62; H01 M 10/24; H01 M 10/40

ABSTRACTED-PUB-NO: DE 10025762A

BASIC-ABSTRACT:



NOVELTY - An anode material contains reduced tin dioxide.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of the anode material comprising binding a tin chloride solution with urea; binding the solution obtained with urotropin; emulsifying the sol obtained in petroleum ether; washing the gel obtained and drawing off the solvent; drying and tempering the gel; and subjecting the SnO<sub>2</sub> obtained to a reducing gas stream in an aerated oven.

USE - Used in electrochemical cells, batteries and secondary batteries (claimed).

ADVANTAGE - The material has improved cyclic stability and increased capacity.

ABSTRACTED-PUB-NO:

US20020028381A

EQUIVALENT-ABSTRACTS:

NOVELTY - An anode material contains reduced tin dioxide.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of the anode material comprising binding a tin chloride solution with urea; binding the solution obtained with urotropin; emulsifying the sol obtained in petroleum ether; washing the gel obtained and drawing off the solvent; drying and tempering the gel; and subjecting the SnO<sub>2</sub> obtained to a reducing gas stream in an aerated oven.

USE - Used in electrochemical cells, batteries and secondary batteries (claimed).

ADVANTAGE - The material has improved cyclic stability and increased capacity.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ANODE MATERIAL ELECTROCHEMICAL CELL BATTERY SECONDARY BATTERY CONTAIN  
REDUCE TIN

DERWENT-CLASS: J03 L03 X16

CPI-CODES: J03-B01; L03-E01B8;

EPI-CODES: X16-B01; X16-E01C1; X16-E01G;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1701U; 1966U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-012274

Non-CPI Secondary Accession Numbers: N2002-031502

**WEST****End of Result Set**

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L6: Entry 1 of 1

File: DWPI

Mar 28, 2001

DERWENT-ACC-NO: 2001-219965

DERWENT-WEEK: 200202

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TITLE: Lithium-mixed oxide particles used in electrochemical cells, batteries, secondary batteries and super capacitors are coated with one or more polymers

INVENTOR: HEIDER, U; KUEHNER, A ; LOTZ, N ; OESTEN, R ; TAUBERT, I ; KUHNER, A

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1046066 (September 25, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1087452 A2	March 28, 2001	G	009	H01M004/52
KR 2001067222 A	July 12, 2001		000	H01M010/38
<u>DE 19946066 A1</u>	March 29, 2001		000	C01G045/00
BR 200004382 A	April 10, 2001		000	H01M004/26
CA 2320501 A1	March 25, 2001	E	000	H01M004/24
JP 2001146427 A	May 29, 2001		009	C01G045/00
CN 1290047 A	April 4, 2001		000	H01M004/36

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1087452A2	September 14, 2000	2000EP-0119969	
KR2001067222A	September 22, 2000	2000KR-0055791	
DE 19946066A1	September 25, 1999	1999DE-1046066	
BR 200004382A	September 22, 2000	2000BR-0004382	
CA 2320501A1	September 22, 2000	2000CA-2320501	
JP2001146427A	September 25, 2000	2000JP-0289795	
CN 1290047A	September 21, 2000	2000CN-0128772	

INT-CL (IPC): C01 D 15/00; C01 D 15/02; C01 G 45/00; C01 G 51/00; C01 G 53/00; H01 M 4/02; H01 M 4/24; H01 M 4/26; H01 M 4/36; H01 M 4/48; H01 M 4/50; H01 M 4/52; H01 M 4/58; H01 M 10/38; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1087452A

BASIC-ABSTRACT:

NOVELTY - Lithium-mixed oxide particles are coated with one or more polymers.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a process for the production of lithium-mixed oxide particles coated with one or more polymers comprising suspending the particles in a solvent, filtering off the coated particles, drying and optionally calcining.

USE - In the production of 3V and 4V cathodes used in electrochemical cells, batteries, secondary batteries and super capacitors (claimed).

ADVANTAGE - The particles have improved storage capacity.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: LITHIUM MIX OXIDE PARTICLE ELECTROCHEMICAL CELL BATTERY SECONDARY BATTERY  
SUPER CAPACITOR COATING ONE MORE POLYMER

DERWENT-CLASS: A85 L03 X16

CPI-CODES: A99-A; L03-B03; L03-E;

EPI-CODES: X16-E01C1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-065791

Non-CPI Secondary Accession Numbers: N2001-156789

**WEST****End of Result Set**

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L7: Entry 1 of 1

File: DWPI

Sep 26, 2001

DERWENT-ACC-NO: 2001-584267

DERWENT-WEEK: 200221

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TITLE: Lithium-mixed oxide particles used in production of cathodes, especially 4V-cathodes, for electrochemical cells are coated with alkali metal compounds and metal oxides

INVENTOR: LI, B; NAKAMURA, N ; NITTA, K ; OESTEN, R

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1014884 (March 24, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1136446 A2	September 26, 2001	G	011	C01G045/00
KR 2001090522 A	October 18, 2001		000	H01M004/50
<u>DE 10014884 A1</u>	September 27, 2001		000	C01G045/00
CA 2342077 A1	September 24, 2001	E	000	C25B011/16
BR 200101026 A	November 6, 2001		000	C01G045/00
US 20010046628 A1	November 29, 2001		000	H01M004/48
JP 2001313034 A	November 9, 2001		009	H01M004/58
CN 1319905 A	October 31, 2001		000	H01M004/48

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1136446A2	February 21, 2001	2001EP-0103588	
KR2001090522A	March 23, 2001	2001KR-0015115	
DE 10014884A1	March 24, 2000	2000DE-1014884	
CA 2342077A1	March 22, 2001	2001CA-2342077	
BR 200101026A	March 23, 2001	2001BR-0001026	
US20010046628A1	March 26, 2001	2001US-0816663	
JP2001313034A	March 22, 2001	2001JP-0082584	
CN 1319905A	March 23, 2001	2001CN-0111759	

INT-CL (IPC): C01 D 15/00; C01 F 7/04; C01 G 23/04; C01 G 37/14; C01 G 45/00; C01 G 49/00; C01 G 49/02; C01 G 51/00; C01 G 51/04; C01 G 53/00; C01 G 53/04; C25 B 11/16; H01 M 4/02; H01 M 4/48; H01 M 4/50; H01 M 4/52; H01 M 4/58; H01 M 6/00; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1136446A

## BASIC-ABSTRACT:

NOVELTY - Lithium-mixed oxide particles are coated with alkali metal compounds and metal oxides.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of lithium-mixed oxide coated particles comprising suspending the particles in an organic solvent; adding an alkali metal salt compound suspended in an organic solvent; adding metal alkoxides dissolved in an organic solvent; reacting the suspension with a hydrolysis solution; and filtering off the coated particles, drying and calcining.

Preferred Features: The particles are selected from  $\text{LiMn}_2\text{O}_4$ ,  $\text{Li}_x\text{MyMn}_2\text{-yO}_4$  (where, M = Ti, Ge, Fe, Co, Cr, Cu, Li, Al, Mg, Ga, Zn, Ni or V),  $\text{LiNiO}_2$ ,  $\text{LiCoO}_2$ ,  $\text{LiMyCo}_1\text{-yO}_2$  (where, M = Fe, B, Si, Cu, Ce, Y, Ti, V, Sn, Zr, La, Ni, Al, Mg, Cr or Mn),  $\text{LiMyNi}_1\text{-yO}_2$  (where, M = Fe, Al, Ti, V, Co, Cu, Zn, B, Mg, Cr or Mn),  $\text{Li}_x\text{WO}_3$ ,  $\text{Li}_x\text{TiS}_2$  and other lithium intercalation and insertion compounds.

USE - Used in the production of cathodes, especially 4V-cathodes, for electrochemical cells (claimed), and also used in batteries, secondary lithium batteries and superconductors.

ADVANTAGE - The particles have improved stability towards acids.

ABSTRACTED-PUB-NO:

US20010046628A

EQUIVALENT-ABSTRACTS:

NOVELTY - Lithium-mixed oxide particles are coated with alkali metal compounds and metal oxides.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of lithium-mixed oxide coated particles comprising suspending the particles in an organic solvent; adding an alkali metal salt compound suspended in an organic solvent; adding metal alkoxides dissolved in an organic solvent; reacting the suspension with a hydrolysis solution; and filtering off the coated particles, drying and calcining.

Preferred Features: The particles are selected from  $\text{LiMn}_2\text{O}_4$ ,  $\text{Li}_x\text{MyMn}_2\text{-yO}_4$  (where, M = Ti, Ge, Fe, Co, Cr, Cu, Li, Al, Mg, Ga, Zn, Ni or V),  $\text{LiNiO}_2$ ,  $\text{LiCoO}_2$ ,  $\text{LiMyCo}_1\text{-yO}_2$  (where, M = Fe, B, Si, Cu, Ce, Y, Ti, V, Sn, Zr, La, Ni, Al, Mg, Cr or Mn),  $\text{LiMyNi}_1\text{-yO}_2$  (where, M = Fe, Al, Ti, V, Co, Cu, Zn, B, Mg, Cr or Mn),  $\text{Li}_x\text{WO}_3$ ,  $\text{Li}_x\text{TiS}_2$  and other lithium intercalation and insertion compounds.

USE - Used in the production of cathodes, especially 4V-cathodes, for electrochemical cells (claimed), and also used in batteries, secondary lithium batteries and superconductors.

ADVANTAGE - The particles have improved stability towards acids.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: LITHIUM MIX OXIDE PARTICLE PRODUCE CATHODE CATHODE ELECTROCHEMICAL CELL COATING ALKALI METAL COMPOUND METAL

DERWENT-CLASS: L03 U14 X12 X16

CPI-CODES: L03-E01B5;

EPI-CODES: U14-F01B1; X12-D06B; X16-B01F1; X16-E01C1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-173252

Non-CPI Secondary Accession Numbers: N2001-435478

**WEST****End of Result Set**

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L11: Entry 1 of 1

File: DWPI

Feb 6, 2003

DERWENT-ACC-NO: 2001-148295

DERWENT-WEEK: 200313

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TITLE: Preparation of benzene sulfonate lithium complex salts used in electrochemical cells comprises reacting substituted phenol with chlorosulfonic acid, isolating the intermediate and reacting with lithium tetramethanol borate

INVENTOR: DE MEIJERE, A; LEONOV, A ; SCHMIDT, M ; DEMEIJERE, A

## PATENT-ASSIGNEE:

ASSIGNEE

MERCK PATENT GMBH

DE MEIJERE A

LEONOV A

SCHMIDT M

CODE

MERE

DMEII

LEONI

SCHMI

PRIORITY-DATA: 1999DE-1032317 (July 10, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20030028023 A1	February 6, 2003		000	H01M006/18
<u>DE 19932317 A1</u>	January 11, 2001		007	C07F005/02
EP 1069128 A2	January 17, 2001	G	000	C07F005/04
CA 2313603 A1	January 10, 2001	E	000	C07F005/04
BR 200002667 A	March 13, 2001		000	C07F001/02
CN 1280130 A	January 17, 2001		000	C07F005/04
JP 2001055396 A	February 27, 2001		009	C07F019/00
KR 2001049741 A	June 15, 2001		000	C07F005/04
US 6441216 B1	August 27, 2002		000	C07F005/04

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20030028023A1	July 10, 2000	2000US-0613293	Div ex
US20030028023A1	July 10, 2002	2002US-0191479	
US20030028023A1		US 6441216	Div ex
DE 19932317A1	July 10, 1999	1999DE-1032317	
EP 1069128A2	June 29, 2000	2000EP-0113144	
CA 2313603A1	July 7, 2000	2000CA-2313603	
BR 200002667A	July 10, 2000	2000BR-0002667	
CN 1280130A	July 6, 2000	2000CN-0120406	
JP2001055396A	July 5, 2000	2000JP-0203763	
KR2001049741A	July 8, 2000	2000KR-0039039	
US 6441216B1	July 10, 2000	2000US-0613293	

INT-CL (IPC): C07 C 303/08; C07 C 303/28; C07 C 309/42; C07 C 309/75; C07 D 213/59; C07 D 239/02; C07 D 239/26; C07 D 241/00; C07 D 241/02; C07 D 241/12; C07 F 1/02; C07 F 5/02; C07 F 5/04; C07 F 7/04; C07 F 7/08; C07 F 7/18; C07 F 19/00; H01 M 6/16; H01 M 6/18; H01 M 10/26; H01 M 10/36; H01 M 10/40

ABSTRACTED-PUB-NO: DE 19932317A  
BASIC-ABSTRACT:

NOVELTY - Preparation of benzene sulfonate lithium complex salts comprises reacting 3-,4-,5-,6-substituted phenol with chlorosulfonic acid in a solvent, isolating an intermediate product and reacting with lithium tetramethanol borate.

DETAILED DESCRIPTION - Preparation of compounds of formula (I) comprises reacting 3-,4-,5-,6-substituted phenol with chlorosulfonic acid in a solvent, filtering and fractionally distilling this intermediate product of formula (II), further reacting with lithium tetramethanol borate in a solvent and isolating the product.

R1 and R2 = optionally bonded by a single or double bond and are phenyl, naphthyl, anthracenyl or phenanthrenyl, pyridyl, pyrazyl or pyrimidyl, or hydroxybenzocarboxyl, hydroxynaphthalene carboxyl, hydroxybenzylsulfonyl or hydroxynaphthalenesulfonyl, all optionally substituted by 1-6C alkyl or alkoxy or F, Cl or Br;

R1 and R2 = H, 1-6C alkyl or tri(1-6C)alkylsilyl; and

R3 - R6 = optionally bonded by a single or double bond and are 1-6C alkyl or alkoxy, F, Cl or Br, or phenyl, naphthyl, anthracenyl or phenanthrenyl, pyridyl, pyrazyl or pyrimidyl, all optionally substituted by 1-6C alkyl or alkoxy or F, Cl or Br.

INDEPENDENT CLAIMS are included for the preparation of the intermediate product (II) as above and the use of (II) in the preparation of (I).

USE - (I) are used as an electrolyte in electrochemical cells (claimed).

ADVANTAGE - The preparation is simple.

ABSTRACTED-PUB-NO:

US 6441216B

EQUIVALENT-ABSTRACTS:

NOVELTY - Preparation of benzene sulfonate lithium complex salts comprises reacting 3-,4-,5-,6-substituted phenol with chlorosulfonic acid in a solvent, isolating an intermediate product and reacting with lithium tetramethanol borate.

DETAILED DESCRIPTION - Preparation of compounds of formula (I) comprises reacting 3-,4-,5-,6-substituted phenol with chlorosulfonic acid in a solvent, filtering and fractionally distilling this intermediate product of formula (II), further reacting with lithium tetramethanol borate in a solvent and isolating the product.

R1 and R2 = optionally bonded by a single or double bond and are phenyl, naphthyl, anthracenyl or phenanthrenyl, pyridyl, pyrazyl or pyrimidyl, or hydroxybenzocarboxyl, hydroxynaphthalene carboxyl, hydroxybenzylsulfonyl or hydroxynaphthalenesulfonyl, all

optionally substituted by 1-6C alkyl or alkoxy or F, Cl or Br;

R1 and R2 = H, 1-6C alkyl or tri(1-6C)alkylsilyl; and

R3 - R6 = optionally bonded by a single or double bond and are 1-6C alkyl or alkoxy, F, Cl or Br, or phenyl, naphthyl, anthracenyl or phenanthrenyl, pyridyl, pyrazyl or pyrimidyl, all optionally substituted by 1-6C alkyl or alkoxy or F, Cl or Br.

INDEPENDENT CLAIMS are included for the preparation of the intermediate product (II) as above and the use of (II) in the preparation of (I).

USE - (I) are used as an electrolyte in electrochemical cells (claimed).

ADVANTAGE - The preparation is simple.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: PREPARATION BENZENE SULPHONATE LITHIUM COMPLEX SALT ELECTROCHEMICAL CELL  
COMPRISE REACT SUBSTITUTE PHENOL CHLOROSULPHONIC ACID ISOLATE INTERMEDIATE REACT  
LITHIUM BORATE

DERWENT-CLASS: E19 L03 X16

CPI-CODES: E05-A; E05-C01; E10-A09B7; L03-E01C;

EPI-CODES: X16-A02; X16-B01F; X16-J08;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

A103 A970 B605 B713 B720 B770 B809 B831 B840 C316  
C710 D013 D016 D019 D022 D029 D041 D500 D599 H6  
H601 H608 H642 K0 K4 K441 K499 L9 L970 L999  
M280 M320 M411 M512 M520 M530 M540 M630 M720 M904  
M905 N209 N221 N242 N262 N282 N306 N309 N352 N382  
N512 N513 Q454

Ring Index

69323 69337

Specific Compounds

A2FXTK A2FXTP

Chemical Indexing M3 \*02\*

Fragmentation Code

A103 A970 B605 B713 B720 B770 B793 B794 B799 B809  
B831 B840 C316 C710 D013 D016 D019 D021 D022 D023  
D024 D025 D500 F012 F013 F014 F015 F019 F020 F029  
F431 F499 F541 F551 F599 G001 G002 G010 G011 G012  
G013 G014 G015 G016 G019 G020 G021 G022 G029 G040  
G100 G111 G112 G113 G221 G299 H401 H402 H441 H442  
H541 H542 H543 H600 H608 H609 H641 H642 H643 J011  
J012 J131 J132 K0 K4 K431 K432 K441 K499 L9  
L921 L941 L970 L999 M112 M114 M115 M119 M121 M122  
M123 M124 M125 M126 M148 M210 M211 M212 M213 M214  
M215 M216 M231 M232 M233 M240 M272 M280 M281 M282  
M283 M320 M411 M511 M520 M521 M522 M523 M530 M531  
M532 M533 M540 M630 M720 M904 M905 N209 N221 N242  
N262 N282 N306 N309 N352 N382 N512 N513 Q454

Ring Index

69337

Markush Compounds

200034-21001-K 200034-21001-P

Chemical Indexing M3 \*03\*

Fragmentation Code

A103 A970 B605 B713 B720 B770 B809 B831 B840 C316



C710 D013 D016 D019 D021 D022 D023 D024 D025 D029  
D041 D500 D599 F012 F013 F014 F015 F018 F019 F020  
F022 F029 F140 F310 F431 F499 F541 F551 F599 G001  
G002 G010 G011 G012 G013 G014 G015 G016 G019 G020  
G021 G022 G029 G040 G100 G111 G112 G113 G221 G299  
H541 H542 H543 H600 H607 H608 H609 H641 H642 H643  
J521 K0 K4 K441 K499 L9 L942 L970 L999 M112  
M114 M115 M119 M210 M211 M212 M213 M214 M215 M216  
M231 M232 M233 M240 M272 M280 M281 M282 M283 M320  
M411 M511 M512 M520 M521 M522 M523 M530 M531 M532  
M533 M540 M630 M720 M904 M905 N209 N221 N242 N262  
N282 N306 N309 N352 N382 N512 N513 Q454  
Ring Index  
69323 69337  
Markush Compounds  
200034-21002-K 200034-21002-P

## Chemical Indexing M3 \*04\*

Fragmentation Code  
B514 B614 B711 B712 B720 B743 B744 B794 B831 B832  
F010 F012 F013 F014 F015 F019 F020 F029 F431 F499  
F541 F551 F599 G001 G002 G010 G011 G012 G013 G014  
G015 G017 G018 G019 G020 G021 G022 G029 G040 G100  
G111 G112 G113 G221 G299 H401 H441 H541 H542 H543  
H600 H607 H608 H609 H641 H642 H643 K0 K4 K431  
K432 M111 M112 M113 M119 M210 M211 M212 M213 M214  
M215 M216 M231 M232 M233 M240 M250 M272 M280 M281  
M282 M283 M320 M411 M413 M414 M510 M520 M521 M522  
M523 M531 M532 M533 M540 M720 M730 M904 M905 N221  
N352 N512  
Markush Compounds  
200034-21003-K 200034-21003-P 200034-21003-S

## Chemical Indexing M3 \*05\*

Fragmentation Code  
G013 G100 H4 H401 H441 H6 H601 H641 H8 M280  
M320 M414 M510 M520 M531 M540 M730 M904 M905  
Specific Compounds  
09897K 09897S

## Chemical Indexing M3 \*06\*

Fragmentation Code  
C017 C100 C101 C108 C316 C730 C800 C801 C804 C805  
M411 M730 M904 M905 M910  
Specific Compounds  
01824K 01824S  
Registry Numbers  
1824S 1824U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1824S; 1824U

## SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-044118

Non-CPI Secondary Accession Numbers: N2001-108678

**WEST****End of Result Set**

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L12: Entry 1 of 1

File: DWPI

May 2, 2001

DERWENT-ACC-NO: 2001-368782

DERWENT-WEEK: 200174

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TITLE: Novel complex salt and its preparation by reacting boron- or phosphorus Lewis acid solvent adduct with lithium or tetraalkylammonium imide, methanide or triflat, used for electrochemical cells

INVENTOR: FRANZ, K; HEIDER, U ; KUEHNER, A ; OESTEN, R ; SCHMIDT, M ; VAUGHAN, J ; WIEDERHOLT, H ; KUHNER, A ; WIEDERHOLD, H

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1051804 (October 28, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1095942 A2	May 2, 2001	G	019	C07F005/02
CN 1308079 A	August 15, 2001		000	C07F005/02
CA 2324630 A1	April 28, 2001	E	000	C07F005/02
DE 19951804 A1	May 3, 2001		000	C07F005/02
BR 200005121 A	May 29, 2001		000	C01D015/00
JP 2001155769 A	June 8, 2001		012	H01M010/40
KR 2001040169 A	May 15, 2001		000	H01M010/36

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1095942A2	October 14, 2000	2000EP-0122499	
CN 1308079A	October 27, 2000	2000CN-0135323	
CA 2324630A1	October 26, 2000	2000CA-2324630	
DE 19951804A1	October 28, 1999	1999DE-1051804	
BR 200005121A	October 30, 2000	2000BR-0005121	
JP2001155769A	October 30, 2000	2000JP-0329886	
KR2001040169A	October 25, 2000	2000KR-0062883	

INT-CL (IPC): C01 D 15/00; C07 F 5/00; C07 F 5/02; C07 F 5/06; C07 F 9/00; C07 F 9/50; C07 F 9/6509; C07 F 9/6512; C07 F 9/66; C07 F 9/70; C07 F 11/00; H01 G 9/022; H01 G 9/038; H01 M 4/60; H01 M 6/00; H01 M 6/16; H01 M 10/26; H01 M 10/36; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1095942A

BASIC-ABSTRACT:

NOVELTY - Complex salt of formula  $Mx+(EZ)y-x/y$  (I) is new.  $x, y = 1 - 6$ ;  $Mx+$  = metal ion; E = Lewis acid; and Z = e.g. OH

DETAILED DESCRIPTION - E = BR1R2R3, AlR1R2R3, PR1R2R3R4R5, AsR1R2R3R4R5 or VR1R2R3R4R5; R1 - R5 may be bonded directly together by a single or double bond; R1 - R5 = (i) halogen; (ii) 1- 8 C alkyl or alkoxy optionally at least partly substituted by F, Cl or Br; (iii) optionally via oxygen bonded aromatic ring from phenyl, naphthyl, anthracenyl or phenanthrenyl optionally substituted up to 7 times by 1 - 8 C or F, Cl or Br; or (iv) optionally via oxygen bonded aromatic via heterocyclic rings from pyridyl, pyrazyl or pyrimidyl, optionally substituted by 1 - 8 C alkyl or F, Cl or Br; Z = OR6, NR6R7, CR6R7R8, OSO2R6, N(SO2R6)(SO2R7), C(SO2R6)(SO2R7)(SO2R8), OCOR6; R6 - R8 = may be bonded directly together by single or double bonds, H or as for R1 - R5.

An INDEPENDENT CLAIM is also included for the use of (I) and mixtures thereof as conductive salts in electrochemical cells., preferably for batteries and supercapacitors.

USE - (I) is used in electrochemical cells for mobile phones and camcorders.

ADVANTAGE - (I) is obtained by a simpler and less expensive process, and stable to oxidation.

CHOSEN-DRAWING: Dwg.0/5

TITLE-TERMS: NOVEL COMPLEX SALT PREPARATION REACT BORON PHOSPHORUS LEWIS ACID SOLVENT ADDUCT LITHIUM IMIDE ELECTROCHEMICAL CELL

DERWENT-CLASS: E12 L03 V01 X16

CPI-CODES: E05-A; E05-B02; E05-B03; E05-C02; E05-G; E05-H; E05-L03A; E31-K; E31-L; E31-Q; E34-C; E35; L03-E01B;

EPI-CODES: V01-B01A; X16-E01A; X16-E01G;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\* Fragmentation Code A103 A940 A960 B720 B752 B803 B831 C009 C100 C316 C710 C803 C804 C805 C806 C807 H6 H607 H685 H689 K0 K3 K352 K399 M280 M311 M322 M344 M362 M392 M411 M510 M520 M530 M540 M620 M640 M710 M720 M904 M905 N104 N513 Q454 Specific Compounds A4CHLN A4CHLP Chemical Indexing M3 \*02\* Fragmentation Code A103 A940 A960 B720 B752 B803 B831 C009 C100 C710 C803 C804 C805 C806 C807 H6 H607 H685 K0 K4 K431 K432 M280 M311 M321 M344 M362 M391 M411 M510 M520 M530 M540 M620 M630 M640 M710 M720 M904 M905 N104 N513 Q454 Specific Compounds A4CHON A4CHOP Chemical Indexing M3 \*03\* Fragmentation Code A103 A313 A423 A940 A960 A970 A980 B105 B115 B133 B205 B214 B215 B233 B405 B415 B433 B505 B514 B515 B533 B605 B615 B633 B711 B712 B713 B720 B741 B742 B743 B744 B751 B752 B803 B815 B825 B831 C009 C017 C035 C100 C101 C108 C316 C550 C710 C720 C730 C801 C802 C803 C804 C805 C806 C807 D010 D012 D019 D020 D021 D029 D040 F010 F011 F019 F020 F021 F029 G001 G002 G010 G011 G012 G013 G019 G020 G021 G029 G040 G051 G100 G111 G112 G113 G221 G299 G341 G399 H100 H102 H121 H141 H181 H401 H421 H441 H461 H521 H522 H523 H600 H601 H602 H603 H608 H609 H621 H622 H641 H642 H643 H681 H682 H683 H684 H685 H686 H689 J011 J111 J131 J171 K352 K353 K399 K431 K442 K499 L620 M121 M122 M123 M124 M125 M126 M129 M132 M143 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233 M240 M262 M271 M272 M273 M280 M281 M282 M283 M311 M312 M313 M314 M315 M316 M320 M321 M322 M323 M331 M332 M333 M334 M342 M343 M344 M361 M362 M391 M392 M393 M411 M417 M510 M511 M512 M513 M520 M521 M522 M523 M530 M531 M532 M533 M540 M620 M640 M650 M710 M720 M904 M905 N104 N513 Q454 Markush Compounds 200041-44701-N 200041-44701-P Chemical Indexing M3 \*04\* Fragmentation Code A103 A313 A423 A940 A960 A970 A980 B105 B115 B133 B205 B214 B215 B233 B405 B415 B433 B505 B514 B515 B533 B605 B615 B633 B711 B712 B713 B720 B741 B742 B743 B744 B751 B752 B803 B815 B825 B831 C009 C017 C035 C100 C101 C108 C316 C550 C710 C720 C730 C801 C802 C803 C804 C805 C806 C807 D010 D012 D019 D020 D021 D029 D040 F010 F011 F019 F020 F021 F029 G001 G002 G010 G011 G012 G013 G019 G020 G021 G029 G040 G051 G100 G111 G112 G113 G221 G299 G341 G399 H100 H102 H121 H141 H181 H401 H421 H441 H461 H521 H522 H523 H600 H601 H602 H603 H608 H609 H621 H622 H641 H642 H643 H681 H682 H683 H684 H685 H686 H689 J011 J111 J131 J171 K352 K353 K399 K431 K442 K499 L620 L722 M121 M122 M123 M124 M125 M126 M129 M132 M143 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233 M240 M262 M271 M272 M273 M280 M281 M282 M283 M311 M312 M313 M314 M315 M316 M320 M321 M322 M323 M331 M332 M333 M334 M342 M343 M344 M361 M362 M391 M392 M393 M411 M416 M417 M510 M511 M512 M513 M520 M521 M522 M523 M530 M531 M532 M533 M540 M620 M630

M640 M650 M710 M720 M772 M904 M905 N104 N513 Q454 Markush Compounds 200041-44702-N  
200041-44702-P

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-113219

Non-CPI Secondary Accession Numbers: N2001-269119

**WEST****End of Result Set**☐ **Generate Collection** **Print**

L13: Entry 1 of 1

File: DWPI

Jun 13, 2001

DERWENT-ACC-NO: 2001-434559

DERWENT-WEEK: 200223

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TITLE: Novel alkylspiroborate salts are useful for production of electrolytes for electrochemical cells, batteries and/or super capacitors

INVENTOR: HEIDER, U; KUEHNER, A ; SCHMENGGER, A ; SCHMIDT, M ; KUHNER, A

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1059722 (December 10, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1106617 A2	June 13, 2001	G	015	C07F005/04
BR 200005824 A	February 26, 2002		000	C07F005/02
CA 2328020 A1	June 10, 2001	E	000	C07F005/02
DE 19959722 A1	June 13, 2001		000	C07F005/02
JP 2001220393 A	August 14, 2001		010	C07F005/04
CN 1304937 A	July 25, 2001		000	C07F005/02
US 20010033964 A1	October 25, 2001		000	H01M006/04
KR 2001062269 A	July 7, 2001		000	H01M004/04

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1106617A2	November 23, 2000	2000EP-0125236	
BR 200005824A	December 11, 2000	2000BR-0005824	
CA 2328020A1	December 8, 2000	2000CA-2328020	
DE 19959722A1	December 10, 1999	1999DE-1059722	
JP2001220393A	December 8, 2000	2000JP-0374770	
CN 1304937A	December 7, 2000	2000CN-0135042	
US20010033964A1	December 11, 2000	2000US-0732899	CIP of
US20010033964A1	January 12, 2001	2001US-0758546	
KR2001062269A	December 8, 2000	2000KR-0074673	

INT-CL (IPC): C01 B 35/00; C07 F 5/02; C07 F 5/04; C07 F 9/54; C07 F 9/547; H01 G 4/018; H01 G 9/00; H01 G 9/022; H01 G 9/038; H01 G 9/35; H01 M 4/04; H01 M 6/04; H01 M 6/16; H01 M 10/26; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1106617A

## BASIC-ABSTRACT:

NOVELTY - Novel alkylspiroborate salts are claimed.

DETAILED DESCRIPTION - A borate salt is of formula (I).

INDEPENDENT CLAIMS are included for;

- (1) An electrolyte containing the salt (I) and
- (2) An electrochemical cell containing the electrolyte.

M = metal ion, tetra-alkylammonium ion,  $\text{P}(\text{NRaRb})\text{kRcmRd}(4-\text{k}-\text{m})$ ,  $\text{C}(\text{NRaRb})(\text{NRcRd})(\text{NReRf})$ ,  $\text{C}(\text{R2})_3$ , tropylium or heterocyclenes containing P, N, S or O or corresponding condensed heterocyclic systems;

k = 1-4;

m = 0-3;

k+m at most 4; Ra-Rf=H, 1-8C alkyl or aryl, optionally substituted by F, Cl or Br; R2=optionally substituted aromatic; x,y=1-6; R1-R4=1-8C alkoxy or carboxyl, optionally directly bonded to each other by a single or double bond.

USE - The borate salt is useful for the production of electrolytes for electrochemical cells, batteries and/or super capacitors (claimed).

ADVANTAGE - The borate salt has good electrochemical stability and has improved conductivity.

ABSTRACTED-PUB-NO:

US20010033964A

## EQUIVALENT-ABSTRACTS:

NOVELTY - Novel alkylspiroborate salts are claimed.

DETAILED DESCRIPTION - A borate salt is of formula (I).

INDEPENDENT CLAIMS are included for;

- (1) An electrolyte containing the salt (I) and
- (2) An electrochemical cell containing the electrolyte.

M = metal ion, tetra-alkylammonium ion,  $\text{P}(\text{NRaRb})\text{kRcmRd}(4-\text{k}-\text{m})$ ,  $\text{C}(\text{NRaRb})(\text{NRcRd})(\text{NReRf})$ ,  $\text{C}(\text{R2})_3$ , tropylium or heterocyclenes containing P, N, S or O or corresponding condensed heterocyclic systems;

k = 1-4;

m = 0-3;

k+m at most 4; Ra-Rf=H, 1-8C alkyl or aryl, optionally substituted by F, Cl or Br; R2=optionally substituted aromatic; x,y=1-6; R1-R4=1-8C alkoxy or carboxyl, optionally directly bonded to each other by a single or double bond.

USE - The borate salt is useful for the production of electrolytes for electrochemical cells, batteries and/or super capacitors (claimed).

ADVANTAGE - The borate salt has good electrochemical stability and has improved conductivity.

CHOSEN-DRAWING: Dwg.0/1

TITLE-TERMS: NOVEL SALT USEFUL PRODUCE ELECTROLYTIC ELECTROCHEMICAL CELL BATTERY SUPER CAPACITOR

DERWENT-CLASS: E11 E12 L03 V01 X16

CPI-CODES: E05-C01; E05-C02; E05-G03A; E06-H; E07-H; E10-B01; L03-E01C;

EPI-CODES: V01-B01B5; X16-B01F1; X16-J02; X16-J08;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

A103 A970 B605 B713 B720 B770 B809 B831 B840 C710  
F012 F014 F015 F017 F019 F022 F140 F199 H6 H607  
H685 H689 M280 M311 M323 M344 M353 M393 M411 M424  
M510 M522 M530 M540 M630 M710 M740 M904 M905 N120  
Q454 R021  
Ring Index  
00068 40281  
Specific Compounds  
A4N51N

Chemical Indexing M3 \*02\*

Fragmentation Code

A970 B415 B515 B605 B713 B720 B731 B732 B741 B742  
B743 B744 B770 B809 B814 B831 B834 B840 C710 C800  
C801 C802 C803 C804 C805 C806 C807 F012 F014 F015  
F016 F019 F022 F140 F163 F170 F199 G001 G002 G010  
G011 G012 G013 G019 G020 G021 G022 G029 G040 G100  
G111 G112 G113 G221 G299 H103 H141 H142 H143 H181  
H182 H183 H600 H607 H608 H609 H641 H642 H643 H681  
H682 H683 H689 J521 J522 J523 L610 L722 L942 L999  
M121 M122 M124 M129 M132 M143 M144 M147 M148 M149  
M150 M210 M211 M212 M213 M214 M215 M216 M220 M221  
M222 M223 M224 M225 M226 M231 M232 M233 M250 M271  
M272 M273 M280 M281 M282 M283 M311 M312 M313 M314  
M315 M316 M320 M321 M322 M323 M331 M332 M333 M334  
M340 M342 M343 M344 M361 M362 M383 M391 M392 M393  
M411 M424 M510 M520 M522 M530 M531 M532 M533 M540  
M610 M620 M630 M650 M710 M740 M904 M905 N120 Q454  
R021  
Markush Compounds  
200043-76102-N

Chemical Indexing M3 \*03\*

Fragmentation Code

A970 B405 B415 B515 B713 B720 B731 B732 B741 B742  
B743 B744 B770 B793 B799 B809 B814 B831 B834 C316  
C710 C800 C801 C802 C803 C804 C805 C806 C807 G001  
G002 G010 G011 G012 G013 G019 G020 G021 G022 G029  
G040 G100 G111 G112 G113 G221 G299 H103 H141 H142  
H143 H181 H182 H183 H581 H582 H583 H584 H601 H602  
H608 H609 H641 H642 H643 H681 H682 H683 H689 K442  
K499 L610 L640 L650 L660 L699 L722 M121 M122 M124  
M129 M132 M143 M144 M147 M148 M149 M150 M210 M211  
M212 M213 M214 M215 M216 M220 M221 M222 M223 M224  
M225 M226 M231 M232 M233 M250 M271 M272 M273 M280  
M281 M282 M283 M311 M312 M313 M314 M315 M316 M320  
M321 M322 M323 M331 M332 M333 M334 M340 M342 M343  
M344 M349 M361 M362 M381 M383 M391 M392 M393 M411  
M424 M510 M520 M530 M531 M532 M533 M540 M610 M620  
M630 M650 M710 M740 M904 M905 N120 Q454 R021  
Markush Compounds  
200043-76101-N

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-131505

Non-CPI Secondary Accession Numbers: N2001-322132

**WEST****End of Result Set**

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L14: Entry 1 of 1

File: DWPI

Aug 29, 2001

DERWENT-ACC-NO: 2001-537923

DERWENT-WEEK: 200254

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TITLE: Preparation of lithium fluoroalkylphosphate electrolyte salt used in batteries comprising electrolysis in hydrogen fluoride, fractionation and separation, reaction with lithium fluoride and purification

INVENTOR: HEIDER, U; IGNATIEV, N ; KUEHNER, A ; SARTORY, P ; SCHMIDT, M ; KUHNER, A ; SARTORI, P ; IGNATYEV, N

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1008955 (February 25, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1127888 A1	August 29, 2001	E	014	C07F009/28
US 6423454 B1	July 23, 2002		000	H01M010/40
<u>DE 10008955 A1</u>	September 6, 2001		000	C07F001/02
CA 2337926 A1	August 25, 2001	E	000	C07F009/535
JP 2001233887 A	August 28, 2001		010	C07F019/00
BR 200100655 A	October 9, 2001		000	C07F009/02
CN 1311188 A	September 5, 2001		000	C07F009/02
KR 2001085566 A	September 7, 2001		000	C07F009/28
<u>DE 10008955 C2</u>	April 25, 2002		000	C07F001/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1127888A1	February 9, 2001	2001EP-0103041	
US 6423454B1	May 18, 2000	2000US-0572939	
DE 10008955A1	February 25, 2000	2000DE-1008955	
CA 2337926A1	February 23, 2001	2001CA-2337926	
JP2001233887A	May 29, 2000	2000JP-0158532	
BR 200100655A	February 20, 2001	2001BR-0000655	
CN 1311188A	February 23, 2001	2001CN-0104921	
KR2001085566A	February 24, 2001	2001KR-0009452	
DE 10008955C2	February 25, 2000	2000DE-1008955	

INT-CL (IPC): C07 F 1/02; C07 F 9/02; C07 F 9/28; C07 F 9/535; C07 F 19/00; C25 B 3/06; C25 B 3/08; H01 G 4/14; H01 G 9/022; H01 M 4/60; H01 M 6/16; H01 M 6/18; H01 M 10/08; H01 M 10/26; H01 M 10/40



ABSTRACTED-PUB-NO: EP 1127888A  
BASIC-ABSTRACT:

NOVELTY - Providing electrolyte salts which display no or only very significant signs of hydrolysis over a long period of time.

DETAILED DESCRIPTION - Preparation of lithium fluoroalkylphosphate (FAPL) of formula  $\text{Li}+(\text{PFx}(\text{CyF}_2\text{y}+1-\text{zHz})_6-\text{x})-$  (I) or  $\text{Li}+(\text{PFA}(\text{CHbFc}(\text{CF}_3)_d)_e)-$  (II) comprises:

(i) fluorination of compounds of formula  $\text{HmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (III),  $\text{OP}(\text{CnH}_2\text{n}+1)_3$  (IV),  $\text{ClmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (V),  $\text{FmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (VI),  $\text{CloP}(\text{CnH}_2\text{n}+1)_5-\text{o}$  (VII) and/or  $\text{FoP}(\text{CnH}_2\text{n}+1)_5-\text{o}$  (VIII) by electrolysis in HF;

(ii) fractionation of the fluorination product by extraction;

(iii) phase separation and/or distillation;

(iv) reaction of the fluorinated alkylphosphorane with LiF in an aprotic solvent or solvent mixture in the absence of moisture; and

(v) purifying and isolating the resulting salt (I) by conventional methods.

$x = 1-5$ ;

$y = 3-8$ ;

$z = 0-(2y+1)$ ;

$m = 0-2$ ;

$n = 3-8$ ;

$o = 0-4$ ;

$a = 2-5$ ;

$b = 0-1$ ;

$c = 0-1$ ;

$d = 2$ ;

$e = 1-4$ ;

$b$  is not 0 when  $c = 0$ ;

$a+e = 6$

INDEPENDENT CLAIMS are included for:

(A) the lithium fluoroalkylphosphates (FAPL) obtained by the process;

(B) the use of FAPL(s) as an electrolyte salt in primary batteries, secondary batteries, capacitors, supercapacitors and/or electrolytic cells; and

(C) an electrolyte for batteries comprising FAPL(s).

USE - Lithium fluoroalkylphosphate (FAPL) salts are used as electrolyte salts in batteries, capacitors, supercapacitors and electrolytic cells (all claimed).

ADVANTAGE - Batteries are rechargeable and have long life. FAPL salts have low production costs and result in no formation of toxic or highly corrosive HF.

ABSTRACTED-PUB-NO:

US 6423454B

EQUIVALENT-ABSTRACTS:

NOVELTY - Providing electrolyte salts which display no or only very significant signs of hydrolysis over a long period of time.

DETAILED DESCRIPTION - Preparation of lithium fluoroalkylphosphate (FAPL) of formula  $\text{Li}+(\text{PF}_x(\text{CyF}_2\text{y}+1-\text{zHz})_6-x)-$  (I) or  $\text{Li}+(\text{PF}_a(\text{CH}_b\text{Fc}(\text{CF}_3)_d)_e)-$  (II) comprises:

(i) fluorination of compounds of formula  $\text{HmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (III),  $\text{OP}(\text{CnH}_2\text{n}+1)_3$  (IV),  $\text{ClmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (V),  $\text{FmP}(\text{CnH}_2\text{n}+1)_3-\text{m}$  (VI),  $\text{CloP}(\text{CnH}_2\text{n}+1)_5-\text{o}$  (VII) and/or  $\text{FoP}(\text{CnH}_2\text{n}+1)_5-\text{o}$  (VIII) by electrolysis in HF;

(ii) fractionation of the fluorination product by extraction;

(iii) phase separation and/or distillation;

(iv) reaction of the fluorinated alkylphosphorane with LiF in an aprotic solvent or solvent mixture in the absence of moisture; and

(v) purifying and isolating the resulting salt (I) by conventional methods.

$x = 1-5$ ;

$y = 3-8$ ;

$z = 0-(2y+1)$ ;

$m = 0-2$ ;

$n = 3-8$ ;

$o = 0-4$ ;

$a = 2-5$ ;

$b = 0-1$ ;

$c = 0-1$ ;

$d = 2$ ;

$e = 1-4$ ;

$b$  is not 0 when  $c = 0$ ;

$a+e = 6$

INDEPENDENT CLAIMS are included for:

(A) the lithium fluoroalkylphosphates (FAPL) obtained by the process;

(B) the use of FAPL(s) as an electrolyte salt in primary batteries, secondary batteries, capacitors, supercapacitors and/or electrolytic cells; and

(C) an electrolyte for batteries comprising FAPL(s).

USE - Lithium fluoroalkylphosphate (FAPL) salts are used as electrolyte salts in batteries, capacitors, supercapacitors and electrolytic cells (all claimed).

ADVANTAGE - Batteries are rechargeable and have long life. FAPL salts have low production costs and result in no formation of toxic or highly corrosive HF.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: PREPARATION LITHIUM ELECTROLYTIC SALT BATTERY COMPRISE ELECTROLYTIC HYDROGEN FLUORIDE FRACTIONATE SEPARATE REACT LITHIUM FLUORIDE PURIFICATION

DERWENT-CLASS: E11 L03 X16

CPI-CODES: E05-G03A; L03-E01C;

EPI-CODES: X16-B01F;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

A103 A970 B415 B720 B743 B752 B819 B831 C009 C710  
H6 H601 H607 H609 H684 H685 H689 M280 M314 M323  
M332 M344 M361 M393 M411 M510 M520 M530 M540 M620  
M630 M720 M782 M904 M905 N120 N364 N512 Q454 R023

Specific Compounds

A580XK A580XM A580XP

Chemical Indexing M3 \*02\*

Fragmentation Code

A103 A970 B415 B720 B741 B742 B743 B744 B751 B752  
B819 B831 C009 C710 H6 H601 H607 H608 H609 H681  
H682 H683 H684 H685 H689 M280 M311 M312 M313 M314  
M315 M316 M321 M322 M323 M331 M332 M333 M334 M340  
M344 M361 M391 M392 M393 M411 M510 M520 M530 M540  
M620 M630 M720 M782 M904 M905 N120 N364 N512 Q454  
R023

Markush Compounds

200047-60401-K 200047-60401-M 200047-60401-P

Chemical Indexing M3 \*03\*

Fragmentation Code

A423 A940 C009 C100 C730 C801 C803 C804 C805 C806  
C807 M411 M730 M904 M905

Specific Compounds

A11L7K A11L7S

Chemical Indexing M3 \*04\*

Fragmentation Code

A351 A940 C009 C100 C730 C801 C803 C804 C805 C806  
C807 M411 M730 M904 M905 M910

Specific Compounds

01792K 01792S

Registry Numbers

1792S 1792U

Chemical Indexing M3 \*05\*

Fragmentation Code

A351 A940 C009 C100 C730 C801 C803 C804 C805 C806  
C807 M411 M730 M904 M905

Specific Compounds

11225K 11225S

Chemical Indexing M3 \*06\*

Fragmentation Code

B415 B720 B743 B752 B815 B831 C009 H6 H601 H607  
H609 H684 H685 H689 M280 M314 M323 M332 M344 M361  
M393 M411 M510 M520 M530 M540 M620 M730 M904 M905

Specific Compounds

AlR35K AlR35S

Chemical Indexing M3 \*07\*

Fragmentation Code

A103 A940 C009 C100 C730 C801 C803 C804 C805 C806  
C807 M411 M730 M904 M905 M910

Specific Compounds

01816K 01816S

Registry Numbers

1816S 1816U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1792S; 1792U ; 1816S ; 1816U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-160270

Non-CPI Secondary Accession Numbers: N2001-399619

**WEST****End of Result Set**

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L15: Entry 1 of 1

File: DWPI

Oct 10, 2001

DERWENT-ACC-NO: 2002-229290

DERWENT-WEEK: 200240

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TITLE: Fluorine-containing lithium salt used for electrochemical cells, super capacitors and lithium ion batteries

INVENTOR: HEIDER, U; KUEHNER, A ; PETIGK, D ; SCHMIDT, M ; KUHNER, A ; SCHMIDT MICHAEL,

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1016801 (April 5, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1143548 A2	October 10, 2001	G	015	H01M010/40
JP 2001354681 A	December 25, 2001		011	C07F009/14
BR 200101308 A	November 6, 2001		000	H01M010/26
CA 2342696 A1	October 5, 2001	E	000	C07F009/535
<u>DE 10016801 A1</u>	October 11, 2001		000	C07F009/09
KR 2001095331 A	November 3, 2001		000	C07F019/00
US 20020001755 A1	January 3, 2002		000	H01M010/40
CN 1318546 A	October 24, 2001		000	C07F009/38

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1143548A2	March 15, 2001	2001EP-0105497	
JP2001354681A	April 5, 2001	2001JP-0107117	
BR 200101308A	April 4, 2001	2001BR-0001308	
CA 2342696A1	April 3, 2001	2001CA-2342696	
DE 10016801A1	April 5, 2000	2000DE-1016801	
KR2001095331A	April 4, 2001	2001KR-0018000	
US20020001755A1	April 5, 2001	2001US-0825868	
CN 1318546A	April 5, 2001	2001CN-0116223	

INT-CL (IPC): C07 F 9/02; C07 F 9/06; C07 F 9/09; C07 F 9/14; C07 F 9/38; C07 F 9/535; C07 F 9/547; C07 F 9/58; C07 F 9/6503; C07 F 9/6509; C07 F 9/6512; C07 F 19/00; H01 G 9/022; H01 M 6/16; H01 M 6/18; H01 M 10/26; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1143548A

BASIC-ABSTRACT:

NOVELTY - A fluorine-containing lithium salt of formula (I) is new.

DETAILED DESCRIPTION - A fluorine-containing lithium salt of formula (I), except lithium perfluoropinakolyl-tetrafluorophosphonate is new.  
 $\text{Li}(\text{P}(\text{OR}_1)\text{a}(\text{OR}_2)\text{b}(\text{OR}_3)\text{c}(\text{OR}_4)\text{dFe} \text{ (I)}$

0 less than  $\text{a}+\text{b}+\text{c}+\text{d}$  at most 5 and  $\text{a}+\text{b}+\text{c}+\text{d}+\text{e} = 6$ .

R1 - R4 = alkyl, aryl or heteroaryl and at least two of R1 - R4 can be joined by a single or double bond.

INDEPENDENT CLAIMS are also included for:

(a) a process for the production of the lithium salt comprising reacting a phosphorus (V) compound of formula:  $\text{P}(\text{OR}_1)\text{a}(\text{OR}_2)\text{b}(\text{OR}_3)\text{c}(\text{OR}_4)\text{dFe}$  with lithium fluoride in the presence of an organic solvent; and

(b) a non-aqueous electrolyte for an electrochemical cell comprising the lithium salt (I) and an organic solvent.

USE - Used for electrochemical cells, super capacitors and lithium ion batteries (claimed).

ADVANTAGE - The lithium salt has high electrochemical stability.  
ABSTRACTED-PUB-NO:

US20020001755A

EQUIVALENT-ABSTRACTS:

NOVELTY - A fluorine-containing lithium salt of formula (I) is new.

DETAILED DESCRIPTION - A fluorine-containing lithium salt of formula (I), except lithium perfluoropinakolyl-tetrafluorophosphonate is new.  
 $\text{Li}(\text{P}(\text{OR}_1)\text{a}(\text{OR}_2)\text{b}(\text{OR}_3)\text{c}(\text{OR}_4)\text{dFe} \text{ (I)}$

0 less than  $\text{a}+\text{b}+\text{c}+\text{d}$  at most 5 and  $\text{a}+\text{b}+\text{c}+\text{d}+\text{e} = 6$ .

R1 - R4 = alkyl, aryl or heteroaryl and at least two of R1 - R4 can be joined by a single or double bond.

INDEPENDENT CLAIMS are also included for:

(a) a process for the production of the lithium salt comprising reacting a phosphorus (V) compound of formula:  $\text{P}(\text{OR}_1)\text{a}(\text{OR}_2)\text{b}(\text{OR}_3)\text{c}(\text{OR}_4)\text{dFe}$  with lithium fluoride in the presence of an organic solvent; and

(b) a non-aqueous electrolyte for an electrochemical cell comprising the lithium salt (I) and an organic solvent.

USE - Used for electrochemical cells, super capacitors and lithium ion batteries (claimed).

ADVANTAGE - The lithium salt has high electrochemical stability.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: FLUORINE CONTAIN LITHIUM SALT ELECTROCHEMICAL CELL SUPER CAPACITOR LITHIUM ION BATTERY

DERWENT-CLASS: L03 V01 X16

CPI-CODES: L03-B03; L03-E; L03-E01C; L03-E01C2; L03-E02;

EPI-CODES: V01-B01D5; X16-B01F1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-069811

Non-CPI Secondary Accession Numbers: N2002-176265

**WEST****End of Result Set**

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L16: Entry 1 of 1

File: DWPI

Mar 7, 2002

DERWENT-ACC-NO: 2002-091687

DERWENT-WEEK: 200261

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TITLE: New non-corrosive, thermally stable ionic liquids comprising azinium or azolium cation and substituted borate anion, useful e.g. in electrochemical cells, as solvents, in catalysis or as hydraulic fluids

INVENTOR: HEIDER, U; HILARIUS, V ; SCHMIDT, M ; WYDRA, M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1026565 (May 30, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
KR 2002017927 A	March 7, 2002	.	000	H01M010/08
EP 1160249 A2	December 5, 2001	G	028	C07F005/04
CA 2348966 A1	November 30, 2001	E	000	C07F005/04
<u>DE 10026565 A1</u>	December 6, 2001		000	C07F005/04
US 20020015883 A1	February 7, 2002		000	H01M010/40
CN 1326936 A	December 19, 2001		000	C07F005/02
BR 200102084 A	March 19, 2002		000	C07F005/02
JP 2002187893 A	July 5, 2002		008	C07F005/04

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2002017927A	May 29, 2001	2001KR-0029755	
EP 1160249A2	May 30, 2001	2001EP-0113237	
CA 2348966A1	May 28, 2001	2001CA-2348966	
DE 10026565A1	May 30, 2000	2000DE-1026565	
US20020015883A1	May 30, 2001	2001US-0866926	
CN 1326936A	May 30, 2001	2001CN-0119371	
BR 200102084A	May 23, 2001	2001BR-0002084	
JP2002187893A	May 28, 2001	2001JP-0158540	

INT-CL (IPC): C07 B 61/00; C07 D 233/58; C07 F 1/02; C07 F 5/02; C07 F 5/04; C07 F 9/02; C10 M 105/00; C10 M 105/78; C10 M 139/00; G21 F 9/28; H01 G 2/00; H01 G 4/04; H01 G 9/038; H01 G 9/145; H01 G 9/35; H01 M 6/04; H01 M 6/16; H01 M 10/00; H01 M 10/08; H01 M 10/40



ABSTRACTED-PUB-NO: EP 1160249A  
BASIC-ABSTRACT:

NOVELTY - New ionic liquids (I) comprise a monovalent azinium or azolium cation and a tetrasubstituted borate anion.

DETAILED DESCRIPTION - Ionic liquids of formula  $K+A^-$  (I) are new.

$K^+$  = azinium or azolium cation of formula  $(K1)-(K8)$ ;

$R1 - R5$  = H, halo or 1-8C alkyl (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T); and may be bonded to each other via single or double bonds;

$T = C_nF_{2n+1}-xH_x$ ;

$n = 2-5$ ;

$x = 1-13$ ;

$A^-$  = tetrasubstituted borate anion of formula  $(B(OQ1)_n(OQ2)_m(OQ3)_o(OQ4)_p)^-$  ;

$m, n, p = 0-4$ ;

$Q1 - Q4$  = phenyl, naphthyl, anthracenyl, phenanthrenyl, pyridyl, pyrazyl or pyrimidyl (all optionally substituted by one or more of H or Q); or 1-8C alkyl (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T); and may be bonded to each other via single or double bonds;

$OR1 - R4$  = aromatic or aliphatic carboxyl, dicarboxyl, oxysulfonyl or oxycarboxyl residue (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T).

USE - (I) are solvent-free ionic liquids, i.e. room temperature molten salts. The use of (I) is claimed in electrochemical cells or supercondensers (optionally in mixtures with aprotic solvents or other conductivity salts), as solvents and in catalysis of chemical reactions or as hydraulic fluids.

ADVANTAGE - (I) have thermal stability, low corrosivity and a wide liquid range, and are highly solubility in organic solvents (even those having a low dielectric constant) to give solutions of high conductivity and low viscosity. (I) passivate (rather than corrode) in the aluminum current collectors of electrochemical cells, to increase the cycle stability. (I) (especially the anion components) can be prepared inexpensively, e.g. in comparison with the analogs described in US5827602. (I) are hydrophobic, and can be prepared in anhydrous media to minimize problems of introduction of water into systems.

ABSTRACTED-PUB-NO:

US20020015883A  
EQUIVALENT-ABSTRACTS:

NOVELTY - New ionic liquids (I) comprise a monovalent azinium or azolium cation and a tetrasubstituted borate anion.

DETAILED DESCRIPTION - Ionic liquids of formula  $K+A^-$  (I) are new.

$K^+$  = azinium or azolium cation of formula  $(K1)-(K8)$ ;

$R1 - R5$  = H, halo or 1-8C alkyl (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T); and may be bonded to each other via single or double bonds;

$T = C_nF_{2n+1}-xH_x$ ;

$n = 2-5$ ;

$x = 1-13$ ;

$A^-$  = tetrasubstituted borate anion of formula  $(B(OQ1)_n(OQ2)_m(OQ3)_o(OQ4)_p)^-$  ;

m, n, p = 0-4;

Q1 - Q4 = phenyl, naphthyl, anthracenyl, phenanthrenyl, pyridyl, pyrazyl or pyrimidyl (all optionally substituted by one or more of H or Q); or 1-8C alkyl (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T); and may be bonded to each other via single or double bonds;

OR1 - R4 = aromatic or aliphatic carboxyl, dicarboxyl, oxysulfonyl or oxycarboxyl residue (optionally substituted, specifically by one or more of F, Cl, NT2, OT, SO2T or T).

USE - (I) are solvent-free ionic liquids, i.e. room temperature molten salts. The use of (I) is claimed in electrochemical cells or supercondensers (optionally in mixtures with aprotic solvents or other conductivity salts), as solvents and in catalysis of chemical reactions or as hydraulic fluids.

ADVANTAGE - (I) have thermal stability, low corrosivity and a wide liquid range, and are highly solubility in organic solvents (even those having a low dielectric constant) to give solutions of high conductivity and low viscosity. (I) passivate (rather than corrode) in the aluminum current collectors of electrochemical cells, to increase the cycle stability. (I) (especially the anion components) can be prepared inexpensively, e.g. in comparison with the analogs described in US5827602. (I) are hydrophobic, and can be prepared in anhydrous media to minimize problems of introduction of water into systems.

CHOSEN-DRAWING: Dwg.0/9

TITLE-TERMS: NEW NON CORROSION THERMAL STABILISED ION LIQUID COMPRISE AZOLIUM CATION SUBSTITUTE BORATE ANION USEFUL ELECTROCHEMICAL CELL SOLVENT CATALYST HYDRAULIC FLUID

DERWENT-CLASS: E12 H08 J04 L03 X16

CPI-CODES: E05-C01; E05-C02; H08-D05; J04-E; J04-E01; J04-E04; L03-E;

EPI-CODES: X16-B01;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

B605 B713 B720 B809 B831 B840 D012 D019 D041 D140  
D199 F011 F013 F521 H181 H201 L721 M210 M211 M212  
M273 M280 M282 M320 M411 M510 M512 M520 M521 M530  
M540 M630 M650 M710 M772 M904 M905 Q417 Q421 Q454  
Q615 R023

Ring Index

01040 04117

Specific Compounds

A631VN

Chemical Indexing M3 \*02\*

Fragmentation Code

B605 B713 B720 B809 B831 B840 D013 D019 D041 D150  
D199 F011 F013 F521 H181 H201 J522 L721 L942 L999  
M210 M211 M212 M273 M280 M282 M320 M411 M510 M512  
M520 M521 M530 M540 M630 M650 M710 M772 M904 M905  
Q417 Q421 Q454 Q615 R023

Ring Index

10024 10862

Specific Compounds

A631WN

Chemical Indexing M3 \*03\*

Fragmentation Code

B605 B713 B720 B809 B831 B840 F011 F012 F013 F014

F015 F019 F022 F140 F199 F521 H181 H201 J523 L721  
L942 L960 L999 M210 M211 M212 M273 M280 M282 M320  
M411 M510 M521 M522 M530 M540 M630 M650 M710 M772  
M904 M905 Q417 Q421 Q454 Q615 R023  
Ring Index  
00068 40281  
Specfic Compounds  
A631YN

## Chemical Indexing M3 \*04\*

Fragmentation Code  
B605 B713 B720 B809 B831 B840 F011 F012 F013 F014  
F015 F019 F022 F140 F199 F521 H181 H201 J522 L721  
L942 L999 M210 M211 M212 M240 M273 M282 M320 M411  
M510 M521 M522 M530 M540 M630 M650 M710 M772 M904  
M905 Q417 Q421 Q454 Q615 R023  
Ring Index  
00068 40281  
Specfic Compounds  
A631ZN

## Chemical Indexing M3 \*05\*

Fragmentation Code  
B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C316 F000 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F530 F541 F551 F599 G001 G002 G010 G011 G012  
G013 G019 G020 G021 G022 G029 G040 G100 G111 G112  
G113 G221 G299 G331 G341 G399 H600 H607 H608 H609  
H621 H622 H623 J521 J522 J523 K432 K441 K499 L921  
L941 L942 L970 L999 M121 M122 M123 M124 M125 M126  
M129 M148 M149 M210 M211 M212 M213 M214 M215 M216  
M220 M221 M222 M223 M224 M225 M226 M231 M232 M233  
M240 M262 M271 M272 M280 M281 M282 M283 M320 M411  
M510 M520 M521 M522 M523 M530 M531 M532 M533 M540  
M620 M630 M650 M710 M771 M904 M905 Q417 Q421 Q454  
Q615 R023  
Markush Compounds  
200055-00801-N

## Chemical Indexing M3 \*06\*

Fragmentation Code  
B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F011 F012 F013 F014 F015 F016 F018  
F019 F020 F022 F029 F140 F150 F163 F199 F310 F399  
F431 F499 F530 F541 F551 F599 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H600 H607 H608  
H609 H621 H622 H623 J521 J522 J523 K130 K432 K441  
K499 L721 L921 L941 L942 L970 L999 M121 M122 M123  
M124 M125 M126 M129 M148 M149 M210 M211 M212 M213  
M214 M215 M216 M220 M221 M222 M223 M224 M225 M226  
M231 M232 M233 M240 M262 M271 M272 M273 M280 M281  
M282 M283 M320 M411 M510 M520 M521 M522 M523 M530  
M531 M532 M533 M540 M620 M630 M650 M710 M772 M904  
M905 Q417 Q421 Q454 Q615 R023  
Markush Compounds  
200055-00802-N

## Chemical Indexing M3 \*07\*

Fragmentation Code  
B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C316 F000 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F521 F541 F551 F599 G001 G002 G010 G011 G012

G013 G019 G020 G021 G022 G029 G040 G100 G111 G112  
G113 G221 G299 G331 G341 G399 H600 H607 H608 H609  
H621 H622 H623 J521 J522 J523 K432 K441 K499 L921  
L941 L942 L970 L999 M121 M122 M123 M124 M125 M126  
M129 M148 M149 M210 M211 M212 M213 M214 M215 M216  
M220 M221 M222 M223 M224 M225 M226 M231 M232 M233  
M240 M262 M271 M272 M280 M281 M282 M283 M320 M411  
M510 M520 M521 M522 M523 M530 M531 M532 M533 M540  
M620 M630 M650 M710 M771 M904 M905 Q417 Q421 Q454  
Q615 R023  
Markush Compounds  
200055-00803-N

## Chemical Indexing M3 \*08\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F011 F012 F013 F014 F015 F016 F018  
F019 F020 F022 F029 F140 F150 F163 F199 F310 F399  
F431 F499 F521 F541 F551 F599 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H181 H201 H211  
H601 H607 H608 H609 H621 H622 H623 J521 J522 J523  
K130 K432 K441 K499 L921 L941 L942 L970 L999 M121  
M122 M123 M124 M125 M126 M129 M148 M149 M210 M211  
M212 M213 M214 M215 M216 M220 M221 M222 M223 M224  
M225 M226 M231 M232 M233 M240 M262 M271 M272 M273  
M280 M281 M282 M283 M320 M411 M510 M520 M521 M522  
M523 M530 M531 M532 M533 M540 M620 M630 M650 M710  
M771 M904 M905 Q417 Q421 Q454 Q615 R023

## Markush Compounds

200055-00804-N

## Chemical Indexing M3 \*09\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F011 F012 F013 F014 F015 F016 F018  
F019 F020 F022 F029 F140 F150 F163 F199 F310 F399  
F431 F499 F521 F541 F551 F599 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H600 H607 H608  
H609 H621 H622 H623 J521 J522 J523 K130 K199 K432  
K441 K499 L921 L941 L942 L970 L999 M121 M122 M123  
M124 M125 M126 M129 M148 M149 M210 M211 M212 M213  
M214 M215 M216 M220 M221 M222 M223 M224 M225 M226  
M231 M232 M233 M240 M262 M271 M272 M273 M280 M281  
M282 M283 M320 M411 M510 M520 M521 M522 M523 M530  
M531 M532 M533 M540 M620 M630 M650 M710 M772 M904  
M905 Q417 Q421 Q454 Q615 R023

## Markush Compounds

200055-00805-N

## Chemical Indexing M3 \*10\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C316 F000 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F541 F551 F599 F610 F710 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H600 H607 H608  
H609 H621 H622 H623 J521 J522 J523 K432 K441 K499  
L921 L941 L942 L970 L999 M121 M122 M123 M124 M125  
M126 M129 M148 M149 M210 M211 M212 M213 M214 M215  
M216 M220 M221 M222 M223 M224 M225 M226 M231 M232  
M233 M240 M262 M271 M272 M280 M281 M282 M283 M320  
M411 M510 M520 M521 M522 M523 M530 M531 M532 M533

M540 M620 M630 M650 M710 M771 M904 M905 Q417 Q421  
Q454 Q615 R023  
Markush Compounds  
200055-00806-N

## Chemical Indexing M3 \*11\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F541 F551 F599 F610 F710 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H600 H607 H608  
H609 H621 H622 H623 J521 J522 J523 K130 K432 K441  
K499 L721 L921 L941 L970 L999 M121 M122 M123  
M124 M125 M126 M129 M148 M149 M210 M211 M212 M213  
M214 M215 M216 M220 M221 M222 M223 M224 M225 M226  
M231 M232 M233 M240 M262 M271 M272 M273 M280 M281  
M282 M283 M320 M411 M510 M520 M521 M522 M523 M530  
M531 M532 M533 M540 M620 M630 M650 M710 M772 M904  
M905 Q417 Q421 Q454 Q615 R023

## Markush Compounds

200055-00807-N

## Chemical Indexing M3 \*12\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C316 F000 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F541 F551 F570 F599 G001 G002 G010 G011 G012  
G013 G019 G020 G021 G022 G029 G040 G100 G111 G112  
G113 G221 G299 G331 G341 G399 H600 H608 H621 H622  
J521 J522 J523 K432 K441 K499 L921 L941 L942 L970  
L999 M121 M122 M123 M124 M125 M126 M129 M148 M149  
M210 M211 M212 M213 M214 M215 M216 M220 M221 M222  
M223 M224 M225 M226 M231 M232 M233 M240 M262 M271  
M272 M280 M281 M282 M283 M320 M411 M510 M520 M521  
M522 M523 M530 M531 M532 M533 M540 M620 M630 M650  
M710 M771 M904 M905 Q417 Q421 Q454 Q615 R023

## Ring Index

00096

## Markush Compounds

200055-00808-N

## Chemical Indexing M3 \*13\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F011 F012 F013 F014 F015 F016 F018  
F019 F020 F022 F029 F140 F150 F163 F199 F310 F399  
F431 F499 F541 F551 F570 F599 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H211 H600 H607  
H608 H621 H622 J521 J522 J523 K130 K432 K441 K499  
L921 L941 L942 L970 L999 M121 M122 M123 M124 M125  
M126 M129 M148 M149 M210 M211 M212 M213 M214 M215  
M216 M220 M221 M222 M223 M224 M225 M226 M231 M232  
M233 M240 M262 M271 M272 M273 M280 M281 M282 M283  
M320 M411 M510 M520 M521 M522 M523 M530 M531 M532  
M533 M540 M620 M630 M650 M710 M771 M904 M905 Q417  
Q421 Q454 Q615 R023

## Ring Index

00096

## Markush Compounds

200055-00809-N

## Chemical Indexing M3 \*14\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F012 F013 F014 F015 F016 F018 F019  
F020 F022 F029 F140 F150 F163 F199 F310 F399 F431  
F499 F541 F551 F570 F599 G001 G002 G010 G011 G012  
G013 G019 G020 G021 G022 G029 G040 G100 G111 G112  
G113 G221 G299 G331 G341 G399 H181 H201 H211 H600  
H607 H608 H621 H622 J521 J522 J523 K130 K432 K441  
K499 L921 L941 L942 L970 L999 M121 M122 M123 M124  
M125 M126 M129 M148 M149 M210 M211 M212 M213 M214  
M215 M216 M220 M221 M222 M223 M224 M225 M226 M231  
M232 M233 M240 M262 M271 M272 M273 M280 M281 M282  
M283 M320 M411 M510 M520 M521 M522 M523 M530 M531  
M532 M533 M540 M620 M630 M650 M710 M771 M904 M905  
Q417 Q421 Q454 Q615 R023

## Ring Index

00096

## Markush Compounds

200055-00810-N

## Chemical Indexing M3 \*15\*

## Fragmentation Code

B405 B505 B605 B713 B720 B793 B794 B799 B809 B831  
B840 C000 C316 F011 F012 F013 F014 F015 F016 F018  
F019 F020 F022 F029 F140 F150 F163 F199 F310 F399  
F431 F499 F541 F551 F570 F599 G001 G002 G010 G011  
G012 G013 G019 G020 G021 G022 G029 G040 G100 G111  
G112 G113 G221 G299 G331 G341 G399 H600 H607 H608  
H621 H622 J521 J522 J523 K130 K199 K432 K441 K499  
L921 L941 L942 L970 L999 M121 M122 M123 M124 M125  
M126 M129 M148 M149 M210 M211 M212 M213 M214 M215  
M216 M220 M221 M222 M223 M224 M225 M226 M231 M232  
M233 M240 M262 M271 M272 M273 M280 M281 M282 M283  
M320 M411 M510 M520 M521 M522 M523 M530 M531 M532  
M533 M540 M620 M630 M650 M710 M772 M904 M905 Q417  
Q421 Q454 Q615 R023

## Ring Index

00096

## Markush Compounds

200055-00811-N

## SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-028508

Non-CPI Secondary Accession Numbers: N2002-067531

**WEST****End of Result Set**

Generate Collection

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L17: Entry 1 of 1

File: DWPI

May 11, 2002

DERWENT-ACC-NO: 2001-584431

DERWENT-WEEK: 200323

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TITLE: Anode material used in electrochemical cells, batteries and secondary cells consists of coated metal cores made from antimony, bismuth, cadmium, indium, lead, gallium, tin or their alloys

INVENTOR: HEIDER, L; HEIDER, U ; LOTZ, N ; ROTHERBURGER, M ; ROTHENBURGER, M ; ROTHENBERGER, M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 2000DE-1016024 (March 31, 2000)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
TW 486837 A	May 11, 2002		000	H01M004/36
EP 1139467 A2	October 4, 2001	G	010	H01M004/50
DE 10016024 A1	October 4, 2001		000	H01M004/38
CA 2342667 A1	September 30, 2001	E	000	H01M004/24
BR 200101242 A	November 6, 2001		000	H01M004/48
JP 2001313030 A	November 9, 2001		007	H01M004/38
CN 1317840 A	October 17, 2001		000	H01M004/36
KR 2001095078 A	November 3, 2001		000	H01M004/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
TW 486837A	March 27, 2001	2001TW-0107206	
EP 1139467A2	March 6, 2001	2001EP-0104584	
DE 10016024A1	March 31, 2000	2000DE-1016024	
CA 2342667A1	March 29, 2001	2001CA-2342667	
BR 200101242A	March 29, 2001	2001BR-0001242	
JP2001313030A	March 29, 2001	2001JP-0095370	
CN 1317840A	March 30, 2001	2001CN-0112088	
KR2001095078A	March 29, 2001	2001KR-0016426	

INT-CL (IPC): C25 B 11/04; H01 M 4/02; H01 M 4/24; H01 M 4/36; H01 M 4/38; H01 M 4/48; H01 M 4/50; H01 M 4/52; H01 M 4/62; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1139467A

## BASIC-ABSTRACT:

NOVELTY - Anode material consists of coated metal cores made from antimony, bismuth, cadmium, indium, lead, gallium, tin or their alloys.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) a process for the production of the anode material comprising producing a suspension or a sol of the metal or alloy core in urotropin; emulsifying the suspension with 5-12C hydrocarbons; precipitating the emulsion on the metal or alloy cores; and converting the metal hydroxide and/or oxyhydroxide into the corresponding oxide by tempering the system; and

(B) an electrochemical cell consisting of a cathode, separator, electrolyte and the anode made of the above material.

USE - Used in electrochemical cells for improving the cyclization of the anode, and in batteries and secondary cells (claimed).

ADVANTAGE - The material has a high capacity. Lithium losses are minimized and good cycle stability is achieved.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ANODE MATERIAL ELECTROCHEMICAL CELL BATTERY SECONDARY CELL CONSIST COATING METAL CORE MADE ANTIMONY BISMUTH CADMIUM INDIUM LEAD GALLIUM TIN ALLOY

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B; L03-E01B8;

EPI-CODES: X16-B01F; X16-E01C1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-173294

Non-CPI Secondary Accession Numbers: N2001-435624



**WEST****End of Result Set**

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L18: Entry 2 of 2

File: DWPI

Apr 4, 2001

DERWENT-ACC-NO: 2001-318914

DERWENT-WEEK: 200202

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TITLE: Fluorinated sulfonamide compounds, useful as non-flammable solvents in electrolytes for electrochemical cells, e.g. lithium batteries for mobile telephones

INVENTOR: HEIDER, U; IGNATYLEV, N ; KUEHNER, A ; SARTORI, P ; SCHMIDT, M ; IGNATYEV, N ; KUHNER, A ; IGNATIEV, N

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1053638 (November 9, 1999), 1999DE-1046673 (September 29, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1088814 A1	April 4, 2001	G	019	C07C311/09
KR 2001067251 A	July 12, 2001		000	H01M010/40
BR 200004449 A	April 10, 2001		000	H01M010/26
CA 2321373 A1	March 29, 2001	E	000	C07C311/09
<u>DE 19953051 A1</u>	April 5, 2001		000	C07C311/02
DE 19953638 A1	May 10, 2001		000	C07C311/09
JP 2001097944 A	April 10, 2001		010	C07C311/09
CN 1289765 A	April 4, 2001		000	C07C311/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1088814A1	September 22, 2000	2000EP-0120189	
KR2001067251A	September 28, 2000	2000KR-0057003	
BR 200004449A	September 26, 2000	2000BR-0004449	
CA 2321373A1	September 27, 2000	2000CA-2321373	
DE 19953051A1	November 3, 1999	1999DE-1053051	
DE 19953638A1	November 9, 1999	1999DE-1053638	
JP2001097944A	September 29, 2000	2000JP-0297830	
CN 1289765A	September 27, 2000	2000CN-0129026	

INT-CL (IPC): C07 C 303/38; C07 C 307/06; C07 C 311/02; C07 C 311/03; C07 C 311/09; H01 G 4/018; H01 G 9/022; H01 M 6/16; H01 M 8/00; H01 M 8/08; H01 M 10/26; H01 M 10/40

ABSTRACTED-PUB-NO: EP 1088814A

BASIC-ABSTRACT:

NOVELTY - Fluorinated sulfonamides are of specified formula (I).

DETAILED DESCRIPTION - Compound of formula (I) is shown below.

X = H, F, Cl, CnF2n+1, CnF2n-1 or (SO2)kN(CR1R2R3)2;

Y, Z = H, F or Cl;

R1-R3 = H and/or alkyl, fluoroalkyl or cycloalkyl;

m = 0-9 (not zero if X = H);

n = 1-9;

k = 0 if m is 0, or 1 if m = 1-9.

INDEPENDENT CLAIMS are also included for the following:

(a) a method for the production of (I) by reacting partly- or per-fluorinated alkylsulfonyl fluorides with dimethylamine in organic solvents;

(b) a method for the production of (I) by reacting halo-sulfonamides with ordinary fluorinating agents in organic solvents;

(c) electrolytes containing (I); and

(d) electrochemical cells (especially lithium batteries and super condensers) essentially comprising cathode, anode, separator and an electrolyte containing (I);

USE - The compounds are used as hardly-inflammable solvents in electrolytes for electrochemical cells, preferably in combination with other common solvents (claimed). Applications include (especially) lithium batteries for mobile telephones or camcorders and batteries for electric vehicles.

ADVANTAGE - Electrolyte additives with good physical and chemical stability, high electrochemical stability, low volatility, high flash point, good miscibility with other common solvents and good conductivity properties.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: FLUORINATED COMPOUND USEFUL NON FLAMMABLE SOLVENT ELECTROLYTIC ELECTROCHEMICAL CELL LITHIUM BATTERY MOBILE TELEPHONE

DERWENT-CLASS: E15 E16 L03 W01 X16 X21

CPI-CODES: E10-A08C; L03-E01C;

EPI-CODES: W01-C01D3C; X16-B01F1; X16-J02; X16-J08; X21-A01F; X21-B01A;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

C316 H6 H685 K0 K3 K353 M210 M211 M273 M282  
M311 M321 M344 M362 M391 M416 M620 M710 M720 M904  
M905 N261 N265 N374 N511 N512 N513 Q454 Q615

Specific Compounds

A3TJ5N A3TJ5P

Chemical Indexing M3 \*02\*

Fragmentation Code

C316 H6 H601 H609 H684 H685 H689 K0 K3 K353  
M210 M211 M273 M282 M314 M321 M332 M344 M362 M391  
M416 M620 M710 M720 M904 M905 N261 N265 N374 N511  
N512 N513 Q454 Q615

Specific Compounds

A3TJ6N A3TJ6P

## Chemical Indexing M3 \*03\*

## Fragmentation Code

C316 H6 H601 H608 H684 K0 K3 K353 K399 L6  
L650 M210 M211 M273 M283 M311 M321 M344 M362 M391  
M416 M620 M710 M720 M904 M905 N261 N265 N374 N511  
N512 N513 Q454 Q615

## Specific Compounds

A3TJGN A3TJGP

## Chemical Indexing M3 \*04\*

## Fragmentation Code

C009 C316 K0 K1 K121 K3 K352 M210 M211 M273  
M282 M320 M416 M620 M710 M720 M904 M905 N261 N265  
N374 N511 N512 N513 Q454 Q615

## Specific Compounds

A0B2JN A0B2JP

## Chemical Indexing M3 \*05\*

## Fragmentation Code

C009 C017 C316 G030 G039 G050 G553 G563 H601 H602  
H607 H608 H609 H681 H682 H683 H684 H685 H686 H689  
H721 K0 K121 K3 K352 K353 M126 M129 M132 M139  
M210 M211 M212 M213 M214 M215 M216 M220 M221 M222  
M223 M224 M225 M226 M231 M232 M233 M271 M273 M280  
M281 M282 M311 M312 M313 M314 M315 M316 M320 M321  
M322 M323 M331 M332 M333 M334 M340 M342 M343 M344  
M352 M362 M373 M391 M392 M393 M415 M416 M510 M520  
M530 M541 M542 M543 M620 M710 M720 M904 M905 N261  
N265 N374 N511 N512 N513 Q454 Q615

## Markush Compounds

200037-76702-N 200037-76702-P

## Chemical Indexing M3 \*06\*

## Fragmentation Code

C316 G030 G039 G050 G553 G563 H601 H602 H607 H608  
H609 H681 H682 H683 H684 H685 H686 H689 K0 K3  
K353 K399 L650 M126 M129 M132 M139 M210 M211 M212  
M213 M214 M215 M216 M220 M221 M222 M223 M224 M225  
M226 M231 M232 M233 M273 M280 M281 M282 M283 M311  
M312 M313 M314 M315 M316 M321 M322 M323 M331 M332  
M333 M334 M340 M342 M343 M344 M352 M362 M373 M383  
M391 M392 M393 M415 M416 M510 M520 M530 M541 M542  
M543 M620 M710 M720 M904 M905 N261 N265 N374 N511  
N512 N513 Q454 Q615

## Markush Compounds

200037-76703-N 200037-76703-P

## Chemical Indexing M3 \*07\*

## Fragmentation Code

C316 G030 G039 G050 G553 G563 H601 H607 H608 H609  
H681 H682 H683 H684 H685 H689 K0 K3 K352 K399  
M126 M129 M132 M139 M210 M211 M212 M213 M214 M215  
M216 M220 M221 M222 M223 M224 M225 M226 M231 M232  
M233 M273 M280 M281 M282 M283 M311 M312 M313 M314  
M315 M316 M320 M321 M322 M323 M331 M332 M333 M334  
M340 M342 M343 M344 M352 M362 M373 M391 M392 M393  
M415 M416 M510 M520 M530 M541 M542 M543 M620 M710  
M720 M904 M905 N261 N265 N374 N511 N512 N513 Q454  
Q615

## Markush Compounds

200037-76704-N 200037-76704-P

## Chemical Indexing M3 \*08\*

## Fragmentation Code

C009 C316 H6 H607 H685 K0 K1 K122 M280 M311  
M321 M344 M362 M391 M416 M620 M730 M904 M905  
Specfic Compounds  
22482K 22482S

## Chemical Indexing M3 \*09\*

Fragmentation Code

H1 H102 H181 M210 M211 M273 M282 M320 M416 M620

M730 M904 M905 M910

Specfic Compounds

01067K 01067S

Registry Numbers

1067S 1067U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1067S; 1067U

## SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-098326

Non-CPI Secondary Accession Numbers: N2001-229224

**WEST****End of Result Set**

Generate Collection

Print

L19: Entry 2 of 2

File: DWPI

May 17, 2001

DERWENT-ACC-NO: 2001-382484  
DERWENT-WEEK: 200141  
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TITLE: Non-aqueous electrolyte used as a component of lithium ion battery or superconductor, comprises fluorine-containing conducting salt, organic solvent and organic isocyanate

INVENTOR: KUEHNER, A; NIEMANN, M ; SCHMIDT, M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

MERCK PATENT GMBH

MERE

PRIORITY-DATA: 1999DE-1044603 (September 17, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 10042149 A1	May 17, 2001		007	H01M010/40

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 10042149A1	August 26, 2000	2000DE-1042149	

INT-CL (IPC): H01 G 9/038; H01 M 10/40

ABSTRACTED-PUB-NO: DE 10042149A  
BASIC-ABSTRACT:

NOVELTY - Non-aqueous electrolyte comprises a fluorine-containing conducting salt, an organic solvent and an organic isocyanate in an amount effective for the reduction of the water content of the electrolyte.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electrochemical cell comprising an anode, a cathode and the above electrolyte.

USE - Used as a component of a lithium ion battery or a superconductor.

ADVANTAGE - The electrolyte is stable against protic impurities.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: NON AQUEOUS ELECTROLYTIC COMPONENT LITHIUM ION BATTERY SUPERCONDUCTING COMPRISE FLUORINE CONTAIN CONDUCTING SALT ORGANIC SOLVENT ORGANIC ISOCYANATE

DERWENT-CLASS: A85 E19 E34 L03 V01 X16

CPI-CODES: A12-E06; E07-A02C; E07-A04; E07-B01; E10-A11B2; E10-A14B; E10-A15C; E10-A15F; E10-G02H2; L03-E01C;

EPI-CODES: V01-B01B; V01-B01D; X16-B01F;

## CHEMICAL-CODES:

## Chemical Indexing M3 \*01\*

## Fragmentation Code

G010 G100 K0 L2 L230 M280 M320 M414 M510 M520  
M531 M540 M782 M904 M905 M910 Q130 Q454

## Specific Compounds

00751K 00751M

## Registry Numbers

0751U

## Chemical Indexing M3 \*02\*

## Fragmentation Code

K0 L4 L472 M210 M211 M272 M282 M320 M416 M620  
M782 M904 M905 Q130 Q454 Q615

## Specific Compounds

07250K 07250M

## Chemical Indexing M3 \*03\*

## Fragmentation Code

K0 L4 L472 M210 M212 M272 M282 M320 M416 M620  
M782 M904 M905 Q130 Q454 Q615

## Specific Compounds

21644K 21644M

## Chemical Indexing M3 \*04\*

## Fragmentation Code

F012 F014 F140 J5 J521 L9 L922 M210 M211 M240  
M281 M320 M413 M510 M521 M530 M540 M782 M904 M905  
M910 Q130 Q454 Q615

## Specific Compounds

00844K 00844M

## Registry Numbers

0844U

## Chemical Indexing M3 \*05\*

## Fragmentation Code

F012 F140 J5 J521 L9 L922 M280 M320 M413 M510  
M521 M530 M540 M782 M904 M905 M910 Q130 Q454 Q615

## Specific Compounds

00645K 00645M

## Registry Numbers

0645U

## Chemical Indexing M3 \*06\*

## Fragmentation Code

K0 L4 L472 M210 M211 M212 M272 M282 M320 M416  
M620 M782 M904 M905 Q130 Q454 Q615

## Specific Compounds

A00AMK A00AMM

## Chemical Indexing M3 \*07\*

## Fragmentation Code

K0 L4 L472 M210 M211 M213 M231 M272 M282 M320  
M416 M620 M782 M904 M905 Q130 Q454 Q615

## Specific Compounds

A00AWK A00AWM

## Chemical Indexing M3 \*08\*

## Fragmentation Code

J0 J011 J2 J271 M210 M211 M262 M272 M281 M320  
M416 M620 M782 M904 M905 M910 Q130 Q454 Q615

## Specific Compounds

00452K 00452M

Registry Numbers  
0452U

## Chemical Indexing M3 \*09\*

Fragmentation Code  
J0 J011 J2 J271 M210 M211 M212 M262 M272 M281  
M320 M416 M620 M782 M904 M905 M910 Q130 Q454 Q615  
Specific Compounds  
01135K 01135M  
Registry Numbers  
1135U

## Chemical Indexing M3 \*10\*

Fragmentation Code  
J0 J011 J2 J271 M210 M211 M212 M262 M272 M281  
M320 M416 M620 M782 M904 M905 Q130 Q454 Q615  
Specific Compounds  
A083BK A083BM

## Chemical Indexing M3 \*11\*

Fragmentation Code  
J0 J011 J2 J271 M210 M211 M213 M231 M262 M272  
M281 M320 M416 M620 M782 M904 M905 Q130 Q454 Q615  
Specific Compounds  
A123KK A123KM

## Chemical Indexing M3 \*12\*

Fragmentation Code  
J0 J011 J2 J271 M210 M212 M262 M272 M281 M320  
M416 M620 M782 M904 M905 Q130 Q454 Q615  
Specific Compounds  
19753K 19753M

## Chemical Indexing M3 \*13\*

Fragmentation Code  
J0 J011 J2 J271 M210 M212 M213 M231 M262 M272  
M281 M320 M416 M620 M782 M904 M905 Q130 Q454 Q615  
Specific Compounds  
12733K 12733M

## Chemical Indexing M3 \*14\*

Fragmentation Code  
C216 K0 K4 K442 M210 M211 M271 M282 M320 M416  
M620 M782 M904 M905 M910 Q130 Q454 Q615  
Specific Compounds  
00274K 00274M  
Registry Numbers  
0274U

## Chemical Indexing M3 \*15\*

Fragmentation Code  
F012 F014 F017 F140 H4 H401 H481 H8 M210 M213  
M232 M240 M282 M311 M321 M342 M373 M391 M413 M510  
M521 M530 M540 M782 M904 M905 Q130 Q454 Q615  
Specific Compounds  
A32XTK A32XTM

## Chemical Indexing M3 \*16\*

Fragmentation Code  
C316 F011 F018 F213 K0 K4 K441 M280 M320 M413  
M510 M521 M530 M540 M782 M904 M905 M910 Q130 Q454  
Q615  
Specific Compounds  
01076K 01076M  
Registry Numbers

1076U

## Chemical Indexing M3 \*17\*

## Fragmentation Code

K0 L1 L145 M210 M211 M263 M281 M320 M416 M620

M782 M904 M905 M910 Q130 Q454 Q615

## Specific Compounds

00342K 00342M

## Registry Numbers

0342U

## Chemical Indexing M3 \*18\*

## Fragmentation Code

H7 H714 H721 K0 L1 L145 M210 M212 M263 M281

M320 M416 M782 M904 M905 M910 Q130 Q454 Q615

## Specific Compounds

00817K 00817M

## Registry Numbers

0817U

## Chemical Indexing M3 \*19\*

## Fragmentation Code

F012 F113 J5 J521 L9 L942 M280 M320 M413 M510

M521 M530 M540 M782 M904 M905 M910 Q130 Q454 Q615

## Specific Compounds

00644K 00644M

## Registry Numbers

0644U

## Chemical Indexing M3 \*20\*

## Fragmentation Code

G010 G011 G100 K0 L2 L230 M1 M111 M280 M320

M414 M510 M520 M532 M540 M782 M904 M905 Q130 Q454

## Specific Compounds

A4DP8K A4DP8M

## Chemical Indexing M3 \*21\*

## Fragmentation Code

G010 G011 G012 G013 G015 G019 G100 K0 L2 L230

L299 M111 M210 M211 M212 M213 M214 M215 M216 M220

M221 M222 M223 M224 M225 M226 M231 M232 M233 M240

M273 M280 M281 M320 M414 M416 M510 M520 M531 M532

M540 M620 M782 M904 M905 Q130 Q454

## Markush Compounds

200041-46501-K 200041-46501-M

UNLINKED-DERWENT-REGISTRY-NUMBERS: 0274U; 0342U ; 0452U ; 0644U ; 0645U ; 0751U ;  
0817U ; 0844U ; 1076U ; 1135U

## ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1] 018 ; P0000 Polymer Index [1.2] 018 ; ND01 ; Q9999 Q7341 Q7330

## SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-117310

Non-CPI Secondary Accession Numbers: N2001-280461